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Implications for Planning
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The Rise of the One-Person Household
in Ontario:
Implications for Planning
October 1979


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TABLE OF CONTENTS

Introduction	1
1. The One-Person Household in Ontario; 1951-1976	5
1.1. Provincial and Regional Trends	5
1.2. Variations at the CMA Level.....	8
2. The Demographic Characteristics of One-Person Households.....	13
2.1. Of Cohorts and One-Person Rates	13
2.2. One-Person Rates for Ontario.....	17
2.3. One-Person Rates for CMA and Non-CMA Ontario.....	25
2.4. Some Conclusions.....	28
3. Comparative Income Distributions.....	33
3.1. Income Distributions for One-Person Households.....	34
3.2. The Effect of Public Housing Assistance Programs	44
3.3. Cohort Income Elasticities.....	49
4. Dwelling Characteristics of One-Person Households.....	57
4.1. Dwelling Characteristics by Cohort Groups.....	58
4.2. A Footnote on "Over-Housing".....	65
4.3. Income Elasticities for Size of Dwelling.....	68
5. The Future Growth of One-Person Households in Ontario	72
5.1. Projection Method and Methodology	72
5.2. Comparisons With Other Forecasting Methods	77
5.3. Projections of Household Formation.....	79
5.4. Housing Demands of One-Person Households; 1976-2001	87
6. Conclusions and Implications for Planning	89
6.1 Implications for Housing Policy.....	92
6.2 Implications for Planning	94
6.2.1 Adjustment Problems	95
6.2.2 Economic Misallocation Problems	96
6.2.3 Social Problems.....	97
6.3 A Concluding Comment on Implications for Planning	98

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The Rise of the One-Person Household: Implications for Planning

In the Census of Canada, a one-person household is an individual who lives alone in a set of living quarters with its own private entrance.¹ Excluded from this definition are all individuals who live in "collective" dwellings such as hotels, hospitals, residences, institutions, camps, jails, and in general rooming houses. What are included as one-person households are, in the main, those individuals who occupy "conventional" housing units with kitchens, bathrooms, and assorted other sleeping and living areas. Some of these individuals may live in very small dwellings (e.g. "bachelor" flats or "studios") while others occupy mansions.

In Ontario since 1951 there has been a very substantial increase in the number of such households to the extent that about 1 in every 6 households is currently of size one. Further, the growth of one-person households has been, if anything, accelerating in recent years. As recently as 1966 for example, persons living alone made up only 1 of every 9 households.

What has brought about this change? There are a number of different explanations that have been forwarded. They might be titled and paraphrased as follows.

- (1) The Demographic Explanation. The increase in one-person households is arising because of changes in the number of nonfamily individuals. Typically, these individuals are seen to include young singles, elderly widowed persons, and divorced or separated persons of all ages. Changes in the age structure of the population and in marital status preferences are thus seen to lie behind the rise of the one-person household.
- (2) The Social Fragmentation Explanation. Another view is that the one-person household increasingly is the result of fragmentation of the extended family unit. Once, it is commonly argued, nuclear families (parents and un-married children living at home) shared their dwelling units with other relatives such as grandparents, spinster aunts and bachelor uncles, and young adult nieces and nephews. Increasingly however, nuclear families are found to be living alone and these other individuals increasingly are found living in one-person households.

- (3) The Divorce Explanation. Since 1968 in Canada, the grounds for divorce have been widened substantially with a major new provision for divorce after three years separation. This is argued to have led to an increasing incidence of married individuals living alone prior to divorce. Also, with the downturn in remarriage rates for divorced persons, more of these individuals are remaining in one-person households after divorce.
- (4) The Home-Leaving Explanation. A related view is that the rise of the one-person household is a consequence of the tendency for young adults to leave their parents' homes and set up their own households at earlier ages than before. Some see this tendency arising from a heightened desire for privacy and independence, others from a greater affluence among the young, while still others point to the increasing ease with which a home can be run with modern appliances.
- (5) The Home Technology Explanation. In recent decades, there has been a proliferation of developments favourable to the one-person households. These include the widespread construction of small apartments (e.g. one-bedrooms, bachelors, studios), and the development of such home appliances as micro-wave ovens, dishwashers, self-cleaning stoves, frost-free refrigerators, and slow cookers. All of these developments have made it easier to live alone comfortably and have encouraged or at least accommodated the trend to one-person households.
- (6) The Income Explanation. Some have argued that the propensity to live alone among nonfamily individuals is quite sensitive to income levels. With increasing affluence, it is argued that the rise of the one-person households is hardly surprising.
- (7) The Government Subsidy Explanation. A related view is that the many new housing subsidy programs created in the last several decades have caused part of the increase in one-person households. Government assistance has been especially pronounced among the elderly living alone; one of the principal kinds of one-person households.
- (8) The Minor Structural Change Explanation. This last argument is that the rise of the one-person household is in part a statistical illusion. The argument hinges on the significance of the term "private entrance" in the definition of a household. An individual who is living alone on the second floor of a house and who has to pass through someone else's living quarters on the first to get to his unit is not considered a household. However, if some minor carpentry is done to create a private entrance that person does become a one-person household. It is argued that a significant number of one-person households have been created by just such changes.

All of the above explanations have some credibility. At the same time, no one would appear to be capable of explaining all the growth which has occurred. In later sections of the paper, we shall try to attach estimates of different kinds to some of these explanations.

What kinds of problems does the rise of the one-person household pose for planners? It would seem that there are potentially two kinds of problems. First, while not wishing to pass judgement on the social desirability of one-person households, it is fair to at least ask to what extent planning and housing policies in Ontario have contributed to this rise. If it were the case that a substantial number of one-person households owe their existence to a certain policy then one would certainly want to assess whether that policy was appropriate. In Section 3 below, an attempt is made to assess the impact of housing assistance programs in this regard. Secondly, one would want to look at the potential problems which one-person households pose for planning and local development. One of these is the potential problem of "overhousing"; the continued occupancy of larger housing units by widowed or divorced one-person households long after their housing "needs" would appear to have diminished. A measure of the extent of overhousing is presented in Section 4. Other problems are discussed in Section 6.

The structure of the remainder of this paper can now be made clear. In Section 1, data on the total numbers of one-person households between 1951 and 1976 are presented. Urban and rural distributions are discussed as well as variations by city size. In Section 2, these data are disaggregated by age, sex, and marital status cohorts for further study. On the basis of this analysis, important shifts in the propensity to live alone are noted. Differences among Ontario's CMA's and the rest of the province are identified. In Section 3, the so-called Income and Government Subsidy explanations are evaluated. Data from two large microdata files are used to estimate income characteristics of one-person households and how these differ from other individuals and households. Income elasticities for the propensity to live alone are also estimated. The dwelling characteristics of one-person households are examined in Section 4.

A measure of "overhousing" is estimated as are income elasticities for the number of rooms occupied and floor area. In Section 5, some projections are made of future growth of one-person households through 2001. Finally, some concluding comments and implications for planning are presented in Section 6.

On the basis of lengthy empirical study in these sections, several conclusions are drawn in this paper. They are summarized briefly as follows:

- (1) that the growth of one-person households has been restricted to urban areas although it has occurred there in all size classes of cities and in all parts of the province;
- (2) that the growth of one-person households has in part but only in part arisen from the increasing relative number of individuals who are not currently married;
- (3) that the growth of one-person households has also in part arisen from the increasing tendency for not-married (single, widowed, divorced) individuals to live in one-person households as opposed to other living arrangements;
- (4) that the growth of one-person households has occurred among all age cohorts from youngest to oldest and is not specifically a consequence of a maturing baby boom or an aging population;
- (5) that the effect of government housing subsidy programs on the incidence of one-person households has been small and contained mainly to the low-income elderly;
- (6) that individuals residing in one-person households tend to have higher incomes than other similar non-family individuals although income does not appear to have a substantial effect on the size of the dwelling unit occupied;
- (7) that if current trends in marriage, divorce, widowhood, and remarriage continue, the number of one-person households will increase quickly for at least the next 20 years in both absolute and relative terms;
- (8) that the growth of one-person households has created and will continue to create new problems for planners in terms of housing mix and in terms of the provision and delivery of public services.

Section 1: The One-Person Household in Ontario: 1951-1976.

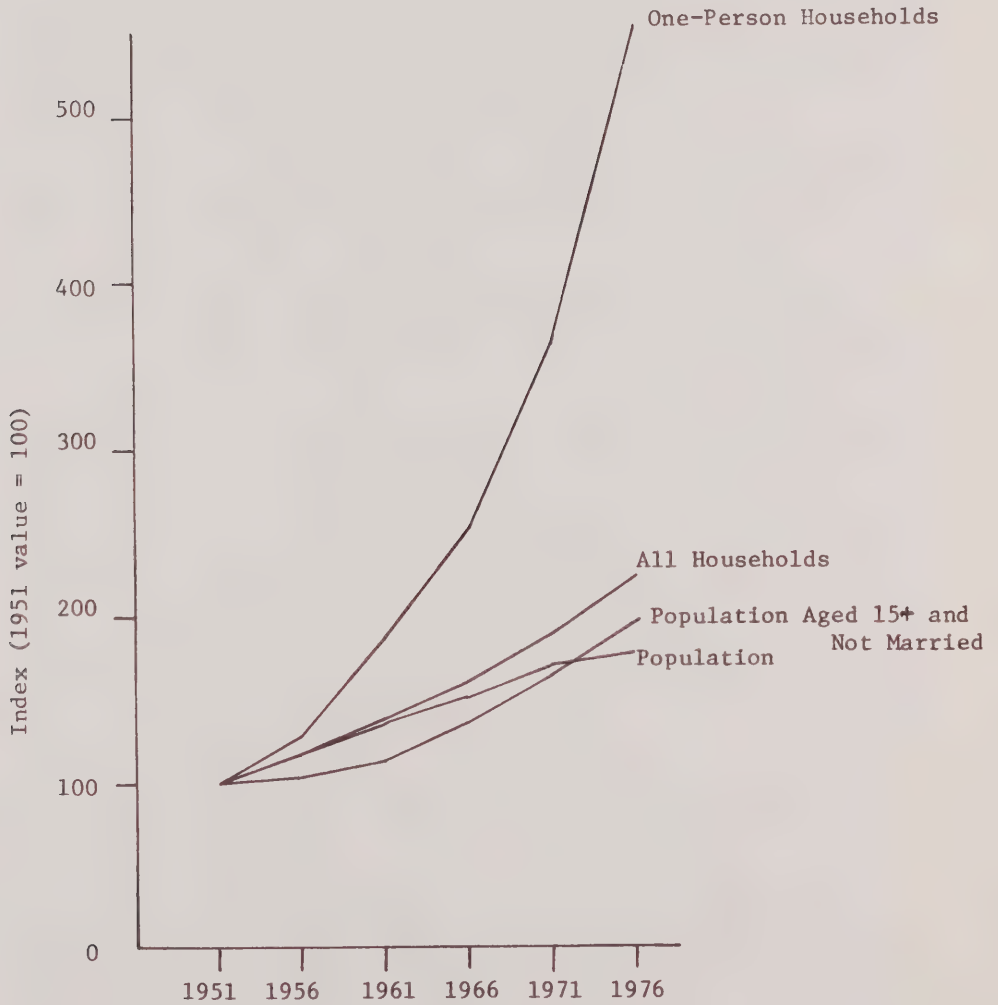
1.1 Provincial and Regional Trends

It is difficult to overstate just how quickly the number of one-person households has increased in this province since 1951. Some comparable data are displayed in Figure 1.1. There it can be seen that the number of one-person households has increased 5 1/2 fold between 1951 and 1976. This growth of one-person households has greatly outstripped the increase in all households in general and the increase in either total population or not-married population aged over 14. Thus, the increasing incidence of one-person households is arising at least in part from factors additional to overall population growth. This is a central concern of the ensuing Sections 2 and 3.

In addition, there have been some major shifts in the incidence of one-person households within different parts of the province. These can be described from the data in Table 1.1. In 1951, about one in nine rural non-farm households contained only one person.² By contrast, only one in sixteen urban households were of this size. At least up until 1966, the incidence of one-person households in urban areas of less than 30,000 persons was very similar to that for rural non-farm areas. Thus, in the early part of the study period, larger urban centres (with more than 30,000 persons) had a relatively lower incidence of one-person households than did smaller communities and rural non-farm areas.

Much of this pattern had been reversed by 1976. While the one in nine ratio continued to hold for rural non-farm households, currently one in every six urban households is of size one. Further, this same high urban ratio is found in almost all sizes of cities. By contrast, among rural farm households the incidence of one-person households has dropped from one in sixteen to one in twenty over the same period. The one-person household has thus

Figure 1.1: One-Person Households, All Households, Population, and Not Married Persons Aged Over 14; Ontario, 1951-1976



Source: Census of Canada, selected years.

Table 1.1: Percent of all Households Containing Only One Person By
Type of Area; Ontario, 1951-1976.

	<u>1951</u> (%)	<u>1956</u> (%)	<u>1961</u> (%)	<u>1966</u> (%)	<u>1971</u> (%)	<u>1976</u> (%)
Ontario	6.8	7.4	9.1	11.0	13.2	17.0
Rural	8.6	9.0	9.2	10.1	10.4	10.7
Farm	6.2	6.4	5.3	5.9	5.1	4.7
Non-Farm	11.0	11.3	11.3	12.2	12.0	11.8
Urban	6.1	6.9	9.1	11.2	13.8	18.3
1000-2499	---	---	{	{	{	18.5
2500-4999	---	---	12.0	13.3	14.8	18.1
5000-9999	---	---	10.5	12.4	12.9	16.2
10,000-29,999	---	---	10.2	12.6	12.6	17.6
30,000-99,999	---	---	7.9	10.3	12.4	17.6
100,000-499,999	---	---	{	11.4	13.6	17.7
500,000+	---	---	8.8	10.6	14.4	19.1

Note:---Not Available

Source: Census of Canada; selected years

shifted over this 25 year span from being a rural, non-farm phenomenon to being an urban phenomenon.

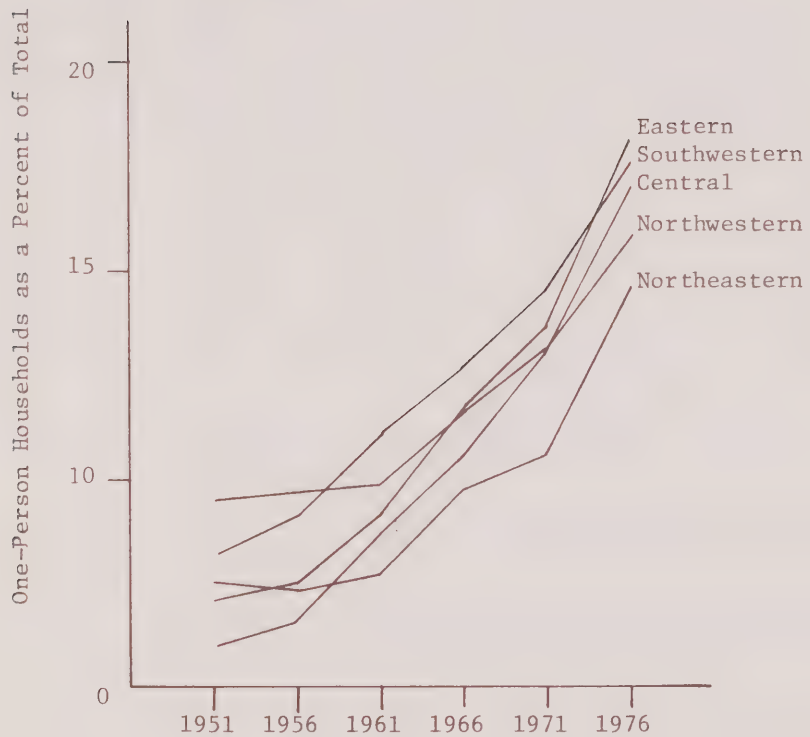
Another way of looking at regional differences within the province is to examine data for Ontario's five Planning Regions.³ In Figure 1.2, only small variations can be observed among these regions. Concomitant with the increasing level of one-person households in urban areas, the greatest gains have occurred in the central and eastern regions. The smallest gains on the same basis have been in the northeastern and northwestern regions. At the same time however, the differences by region were relatively small by 1976. This suggests that the rapid formation of one-person households has been experienced across the entire province.

1.2. Variations at the CMA Level

Of course, the relatively similar incidences of one-person households at the Planning Region level does not mean that similar patterns will be found across smaller local areas. The incidence of one-person households within individual Census Metropolitan Areas (CMA's) between 1951 and 1976 are presented in Table 1.2.⁴ Available data show pronounced differences among the CMA's. London for example has traditionally had the highest incidence of one-person households although recently it has been overtaken by Ottawa. Oshawa and Sudbury have had consistently the lowest proportions of households of size one.

What has caused these very substantial differences between different CMA's? We shall return to look at these CMA's in more detail in Section 2. There, the differences will be seen to arise in part but not in whole from variations in the demographic structure of each CMA's population.

Figure 1.2: The Incidence of One-Person Households by Planning Region;
Ontario, 1951 to 1976



Source: Computed from Census of Canada, selected years.

Table 1.2: Percent of all Households Containing Only One Person
By Census Metropolitan Areas, 1951-1976

	<u>1951</u>	<u>1956</u>	<u>1961</u>	<u>1966</u>	<u>1971</u>	<u>1976</u>
	(%)	(%)	(%)	(%)	(%)	(%)
Thunder Bay	--	--	--	--	13.7	16.6
Oshawa	--	--	--	--	--	12.7
Sudbury	--	--	5.1	7.4	7.6	13.4
Windsor	5.7	7.1	10.3	11.8	13.7	18.9
Kitchener	--	--	8.4	9.9	11.8	16.1
London	7.1	8.5	10.9	13.0	15.2	20.0
St. Catherines-Niagara	--	--	--	--	12.6	16.3
Hamilton	5.7	6.3	7.9	9.9	12.6	16.9
Ottawa	5.5	6.3	8.1	11.5	14.9	20.9
Toronto	4.9	5.9	8.4	10.6	13.5	18.1

Note:---Not Available

Source: Census of Canada, selected years

Local differences become amplified when examining data for the individual municipalities making up each CMA. As an example, in 1976 31% of the households in the City of Toronto were of size one while the corresponding figure for the Town of Pickering was 4.7%. Yet, both municipalities are part of the Toronto CMA which from Table 1.2 had a corresponding figure of 18.1%. Such local variations are also typical of many of the other CMA's.

What causes these municipal differences in the incidence of one-person households? Again, this question will be looked at in more detail in Section 2. However, an initial speculation might be that intermunicipal differences are attributable to variations in the age and marital status distribution of each town's population. Some support can be found for this hypothesis. Employing the 81 municipalities which in 1976 made up the 10 CMA's in Ontario as observations, the following Ordinary Least Squares Regression has been estimated.

$$Y = -.117 + 0.948 X_1 \quad R^2 = 0.650, N=81 \quad (1) \\ (12.154)$$

where Y = proportion of all households in the municipality which were of size 1 in 1976

X_1 = proportion of population (aged 15 years or older) which was not married (single, widowed, divorced) in the municipality in 1976.

The T-value (in parentheses) and R-squared show that there is a systematic relationship between the proportion of population which is not married and the incidence of one-person households.⁵

However, it is also possible to detect a size effect. The above equation (1) asserts that two municipalities with the same level of X_1 will have similar values of Y . There is some empirical support for the argument that larger cities tend to have higher incidences of one-person households than do smaller towns even though their values of X_1 may be similar. When a city size variable is introduced into (1) the following regression is estimated.

$$Y = -.079 + 0.764 X_1 + 0.372 X_2 \quad R^2 = .705, N=81 \quad (2)$$

(8.782) (3.796)

where X_2 = population of municipality in 1976 (in millions of persons).

In (2) the size of the municipality, X_2 , has a significant effect on the incidence of one-person households. Thus, as was noted earlier with respect to Figure 1.1, the incidence of one-person households appears in part to reflect broad demographic variations (as measured in X_1) but at the same time appears to reflect other forces as well.

Section 2: The Demographic Characteristics Of One-Person Households.

2.1 Of Cohorts and One-Person Rates

As noted in Section 1, the rise of the one-person household has been associated in part with changes in the demographic structure of Ontario's population. This association is explored in this section through an analysis of the incidence of one-person households in different age, sex, and marital status cohorts. Until recent years, census data have not been available for finely-defined cohorts. Therefore, much of the analysis in this section will be based on data from only 1966 to 1976.

The most common way of examining household formation from a demographic perspective is through the calculation of household headship rates. In census terms, every household is deemed to have one person who is called the "head" according to some rule.⁶ Counting heads is thus equivalent to counting households. The headship rate for a cohort is defined to be the number of individuals in that cohort who are heads of households divided by the total population of that cohort. If one had for example a cohort of 100,000 married males aged 20-24, of whom 85,000 were heads of household, the headship rate for that cohort would be 0.85.

The usefulness of the headship rate method is that it decomposes household formation into two components; the size of the cohort, and the headship rate for that cohort. Thus, if $H(t)$ is the total number of households at time t , $h_c(t)$ is the headship rate for cohort c , and $N_c(t)$ is the number of individuals in cohort c , the following identity applies.

$$H(t) = \sum_c h_c(t) N_c(t) \quad (3)$$

An individual who lives alone is by definition the head of his or her household. Thus, one can define a one-person (headship) rate, $p_c(t)$, which is the proportion of a cohort c at time t residing in (and therefore head of) a one-person household. The total number of one person households at time t , $P(t)$, is given by the following identity.

$$P(t) = \sum_c p_c(t) N_c(t) \quad (4)$$

It is this decomposition of one-person households into one-person rates and cohort sizes which is the principal concern of the remainder of this section.

It is important to remember that the size ($N_c(t)$) of the cohort can be as important as the one-person rate ($p_c(t)$) in affecting the total number of one-person households ($P(t)$). Consider Figure 2.1 which describes a breakdown of one-person households by different cohort groups. In 2.1(a), the number of one-person households in Ontario in 1976 was 448,925. Roughly 7 of every 8 of these were occupied by persons not currently married (i.e., single, widowed, or divorced).⁷ Among not-married individuals living alone, females outnumber males almost 2 to 1. However, when not-married individuals living alone are divided into two age groups - those under 55 versus those 55 or older - a difference between the two sexes remains only for the over 54 year-olds. Almost 40% of all one-person households are thus elderly not-married females (principally, widows). This sex differential reflects both (i) higher mortality rates for elderly males than females and (ii) higher remarriage rates for elderly widowers than for widows. Among married individuals, the differences between the two sexes occur mainly in the 25-54 age group. The greater number of males living alone in this cohort reflects the tendency for separating married women in this age group to take custody of any children, making them unlikely to occupy a one-person household.

Figure 2.1: One-Person Households by Age, Sex, and Marital Status; Ontario, 1966 and 1976.

(a) 1976

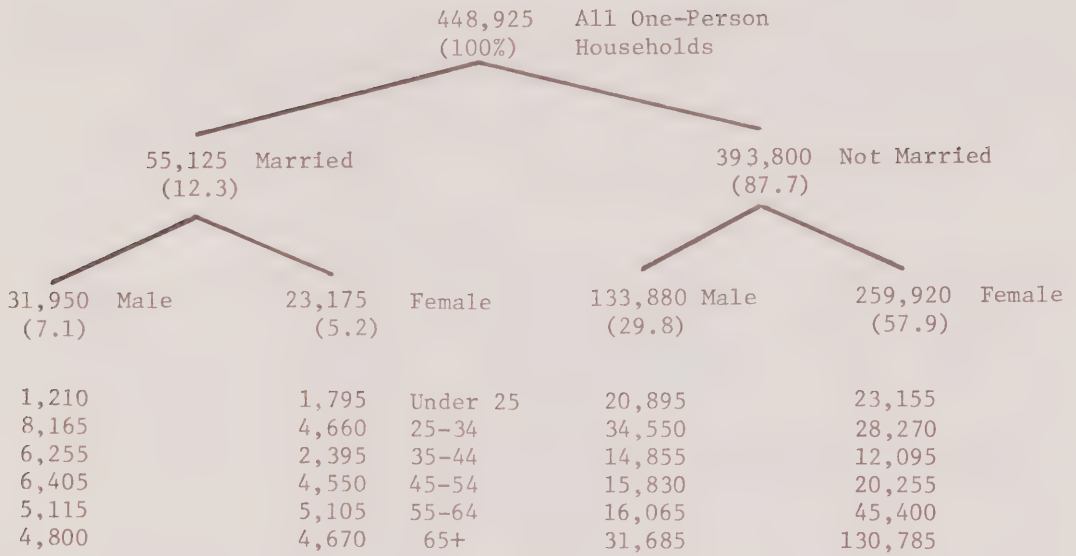
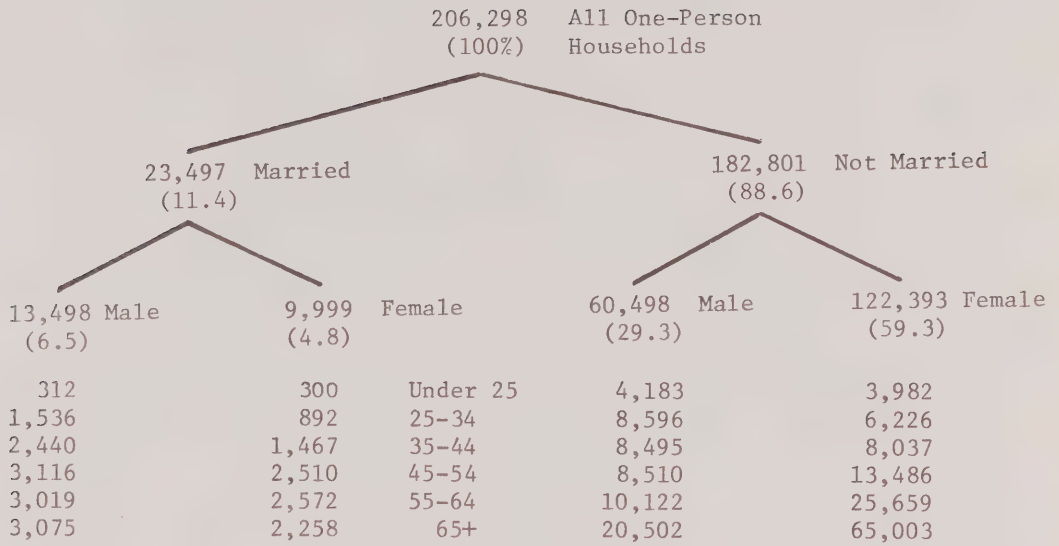


Figure 2.1: Continued

(b) 1966



Source: Censuses of Canada, 1966 and 1976.

In 2.1 (b), similar data are presented for 1966. Many of the patterns described above for 1976 also appear to hold for 1966. The principal changes between the two dates appear to be the following.

- (i) An increasing frequency of one-person households among married males 25- 44. This may be attributable to the new divorce legislation of 1968 which permits divorce after three years separation, thus encouraging at least one spouse to live alone before divorce.
- (ii) A sizable shrinkage in the proportion of all one-person households occupied by not-married individuals aged 55 or older and an increasing frequency among those aged under 35. This may be attributable to the maturing post-war babyboom which had begun to swell the ranks of young adults during this period.

2.2 One-Person Rates for Ontario

With the above data in mind, let us now turn to an examination of one-person rates. In Figure 2.2 are presented data on one-person rates for age-sex cohorts in Ontario between 1956 and 1976. Several trends are noteworthy:

- (i) the sustained rise in virtually all one-person rates between 1956 and 1976;
- (ii) The very large absolute increases in these rates for females aged 55 or older; and
- (iii) the large relative increases in one-person rates for the under 35 age groups for both sexes.

Clearly, one-person rates have changed quite substantially over this time period and any analysis of the formation of one-person households must consider this as well as any changes in cohort sizes. Any explanation based strictly on changes in the numbers of individuals by age or sex will be incomplete.

At first glance, one might want to point out the lack of a marital status disaggregation in Figure 2.2. It could be argued for example that the changing one-person rates are merely a reflection of an increasing incidence of not-married individuals in all sex and age groups. The way to evaluate this argument is of course to calculate one-person rates for individual age-sex-marital status cohorts. Although the appropriate data are not available prior to 1966, 1966

Figure 2.2 One-Person Rates by Age and Sex; Ontario, 1956-1976

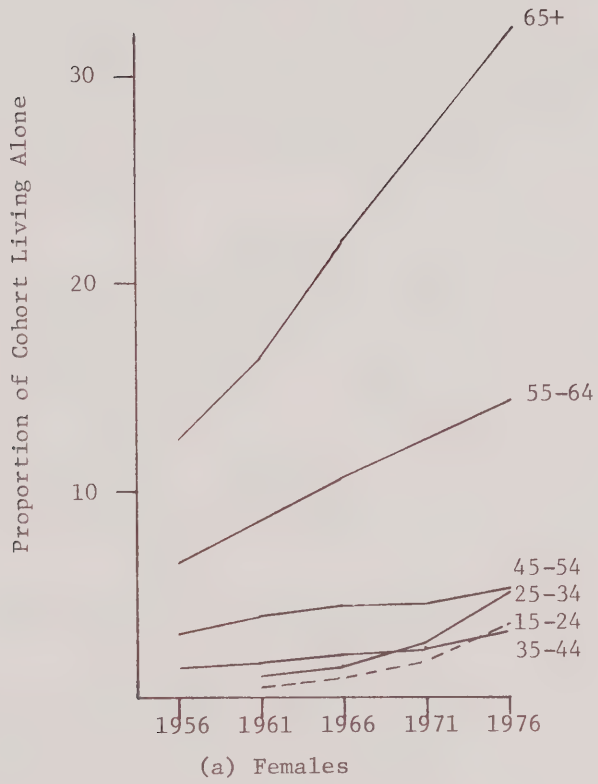
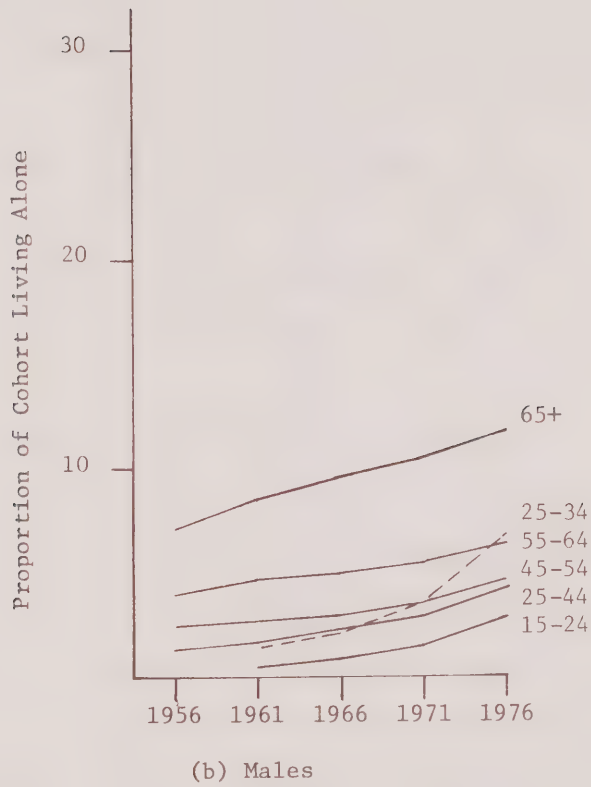


Figure 2.2: Continued



Note: 1956 data unavailable for 15-24 and 25-34 year old age groups separately.

Source: Census of Canada, selected years.

and subsequent data do refute this argument.

In Table 2.1, one-person rates for Ontario have been disaggregated into two marital statuses; married (including separated) and other (including single, widowed, and divorced). These data indicate that one-person rates have been increasing sharply for both married and other individuals. The righthand column of Table 2.1 gives the average annual rate of increase of the one-person rates between 1966 and 1976. One-person rates can be seen to have been increasing the fastest in relative terms among the under-35's for both sexes and marital statuses. For males, these one-person rates have been increasing less quickly with increasing age. For females, the rates have been increasing most slowly for intermediate age groups with larger increases among the elderly. All of the above observations support the argument that there have been fundamental changes occurring in the propensity to live alone among all age, sex, and marital status cohorts.

At first glance, it may seem difficult to interpret just how important these changes in one-person rates have been. This is because, as seen in (4), changing one-person rates are weighted by cohort sizes in arriving at a total number of one-person households. One measure of the impact of these changing rates is to project what the number of such households would have been in 1976 if the rates had not changed between 1966 and 1976. Applying the 1966 rates to the 1976 population cohorts yields an estimate of 284,000 one-person households. From Figure 2.1 however, the actual number of one-person households in 1976 was 448,925. Thus, from the base 206,298 one-person households in 1966, one would have with constant rates estimated a 38% increase in one-person households over the ensuing decade (or about 3.3% per annum) whereas the increase over that period actually was 118% (or 8.1% per annum). Put another

Table 2.1: One-Person Rates for Age, Sex, and Marital Status Cohorts;
Ontario, 1966 to 1976

	<u>1966</u>	<u>1971</u>	<u>1976</u>	<u>Annual Rate of Increase (%)</u>
Male, Married				
15-24	.004	.006	.010	10
25-34	.004	.009	.016	14
35-44	.006	.009	.014	9
45-54	.009	.012	.015	5
55-64	.013	.015	.017	3
65+	.017	.019	.021	2
Male, Other				
15-24	.009	.016	.032	13
25-34	.101	.146	.241	9
35-44	.168	.213	.304	6
45-54	.214	.249	.328	4
55-64	.267	.319	.396	4
65+	.277	.330	.407	4
Female, Married				
15-24	.002	.004	.008	16
25-34	.002	.004	.009	14
35-44	.003	.004	.006	5
45-54	.008	.009	.011	3
55-64	.014	.017	.020	4
65+	.019	.024	.029	4
Female, Other				
15-24	.011	.020	.043	15
25-34	.128	.170	.272	8
35-44	.183	.186	.233	2
45-54	.229	.252	.297	3
55-64	.315	.383	.466	4
65+	.329	.413	.492	4

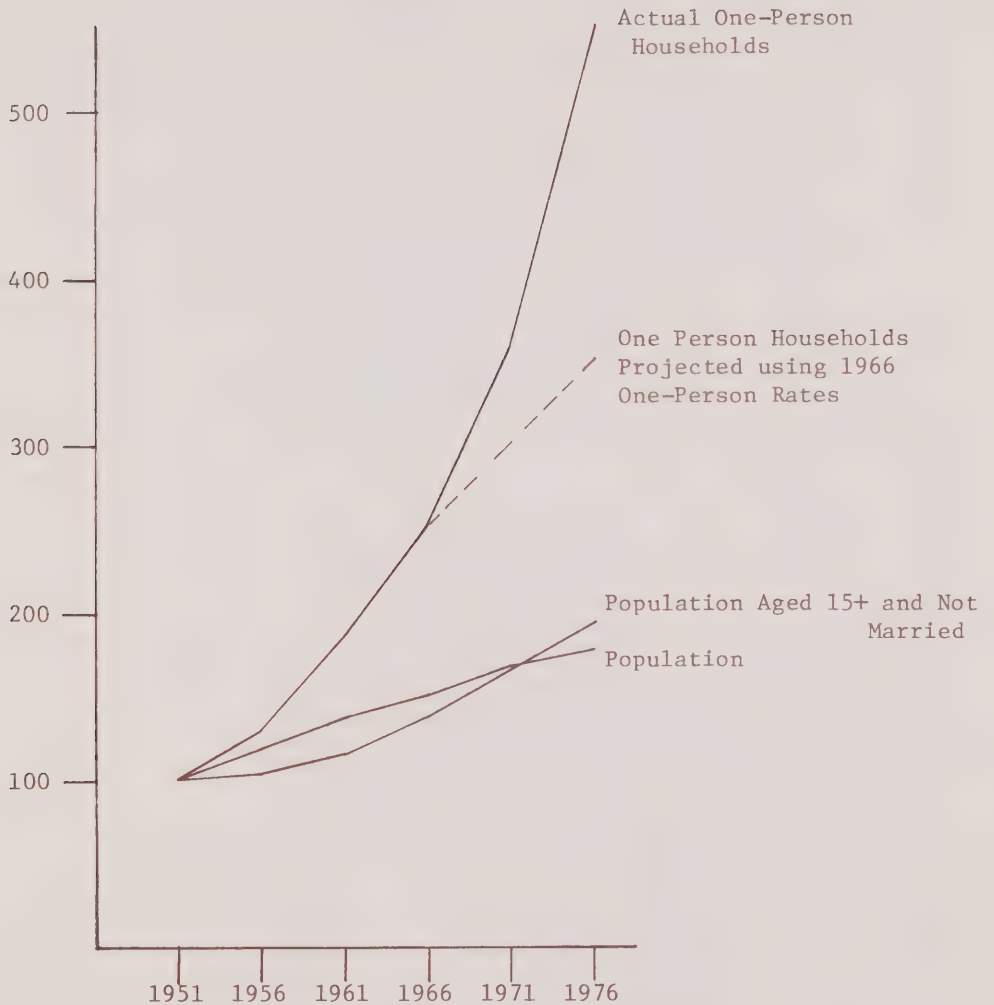
Note: One-Person Rate is the proportion of a given cohort which lives in one-person households.

Source: Computed from Census of Canada; 1966, 1971, and 1976.

way, a projection to 1976 using the 1966 rates would have captured only 32% of the increase in one-person households which actually occurred. This information is displayed graphically in Figure 2.3 where the 1976 estimate based on 1966 rates has been added to the data presented earlier in Figure 1.1. Thus, one can only conclude that changes in one-person rates in recent years have accounted for much of the observed increase in one-person households.

While changes in one-person rates have undoubtedly been important, it is also useful to ask whether the changes have been equally important across all cohorts. That question can be at least partly resolved by disaggregating our 1976 estimate on a basis similar to that in Figure 2.1. This is carried out in Figure 2.4. In addition to specific cohort estimates, the average annual growth rate differential between these estimates and the actual 1976 values in Figure 2.1 are indicated. For example, among married males the estimated number of one-person households in 1976 would have been 17,100 and the actual number observed is 31,950. Thus the estimated number of one-person households would have to have grown 6.5% per year faster than it did in order to have reached the observed value of 31,950 by the end of the decade. Examining the bottom rows of Figure 2.4, it can be seen that most of the cohorts had a growth rate differential of between 4 and 6 per cent per year with only three exceptions; the younger marrieds, the 25-34 not-marrieds, and the 55+ married males. The former two cohorts had higher growth rate differentials and the latter, lower. However, these cohorts also have low counts of one-person households. It would thus appear that the impact of increasing one-person rates on the formation of one-person households has generally been uniform across all larger age, sex, and marital status groupings of the population.

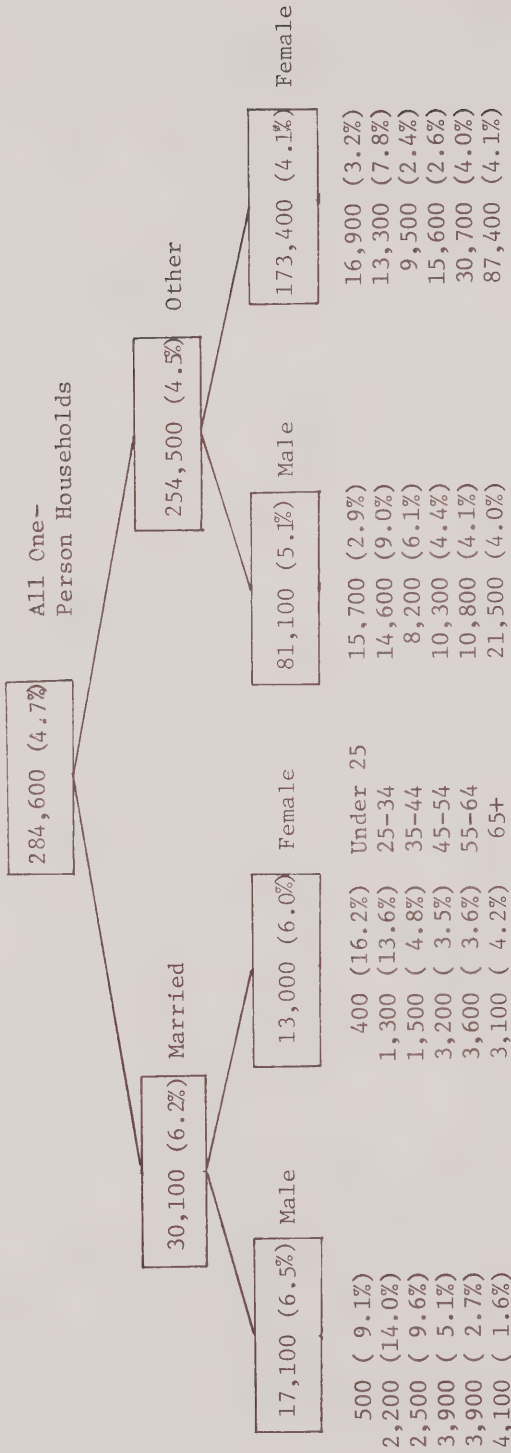
Figure 2.3: Estimated* and Actual One-Person Households in Ontario



Note: * estimated assuming one-person rates in 1976 same as 1966 rates

Source: See text and Figure 1.1

Figure 2.4: Disaggregation of 1976 Estimated* One Person Households by Cohorts



* See text for method of estimation

Source: See Text.

2.3. One-Person Rates for CMA and Non-CMA Ontario

Let us now turn our attention to variations in one-person rates within the province. Among the ten CMA's in Ontario in 1976, there are considerable variations in one-person rates. Some of these are described in Table 2.2. There, the highest and lowest rates from among the ten CMA's are presented for each age, sex, and marital status cohort. It can be seen by comparing these data with those in Table 2.1 that the CMA rates tend to vary from the corresponding provincial rate; some CMA's having higher rates and others lower rates. There are also systematic patterns for particular CMA's. London, for example, tends to have high rates for the 15-24 cohorts. Ottawa tends to have high rates for all cohorts except the 15-24's. Windsor tends to have high rates only among elderly, not-married cohorts. Oshawa, Sudbury, and Thunder Bay tend to have consistently low rates. Toronto, which tends to be typical for most cohorts, has very low rates for elderly, not-married females.

In spite of these variations among CMA's, the historical pattern is essentially the same as for the province. That is, all CMA's have shown sharply rising one-person rates over the period 1966-1976. Further, there is some evidence that these rates are converging in relative, if not absolute, terms. At the same time, CMA's such as Oshawa, Thunder Bay, and Sudbury have tended to have quite low one-person rates while Ottawa and London have tended to have fairly high rates over this entire period.

Why do such variations exist in one-person rates among the CMA's? It is hard to be definitive because there are several possible answers; all supportable (or not refutable) from current data. Four of these possibilities are as follows:

Table 2.2: Low and High One-Person Rates by Age, Sex, and Marital Status Cohorts; Ontario CMA's, 1976

	Married		Other	
	Low	High	Low	High
Male				
15-24	.005	.015	.027	.058
25-34	.011	.023	.175	.322
35-44	.012	.020	.238	.389
45-54	.015	.021	.267	.374
55-64	.015	.023	.347	.461
65+	.017	.026	.320	.474
Female				
15-24	.005	.013	.027	.084
25-34	.004	.015	.198	.353
35-44	.004	.008	.148	.300
45-54	.008	.016	.216	.345
55-64	.017	.028	.438	.534
65+	.024	.038	.456	.547

Source: Computed from 1976 Census of Canada.

- (1) The Supply Factor. It is sometimes argued that the availability of housing suitable for one-person households is a major constraint on the formation of such households. Availability might be measured in terms of the supply of certain categories of housing (e.g., the number of one-bedroom dwelling units) or in terms of the prices at which such housing is made available. There are several reasons why availability might be expected to vary from one CMA to the next; variations in land and building costs, differences in the characteristics of previously-existing dwelling units, and the varying attitudes of local developers and councils toward supplying this segment of the housing market. While it is possible to document some relationships between local availability and one-person rates, the question of causality is begged. Do CMA's with low one-person rates have a low level of availability as a consequence or as a cause?
- (2) The Income-Subsidization Factor. It can be argued that local variations in one-person rates reflect variations in demand rather than supply aspects. There is some evidence for example that certain cohorts have higher incomes in some CMA's than in others. Such variations could have substantial impacts on one-person rates given the income elasticities measured below in Section 3. In addition, there are local variations in the extent of public housing assistance programs. Particularly among the elderly where the subsidization of one-person households is the highest, such variations may produce substantial local differences in one-person rates.
- (3) The Family Connection Factor. A view is outlined above that the formation of one-person households arises from the fragmentation of extended family units. This may be particularly acute in CMA's wherein either substantial numbers of nonfamily individuals have in-migrated or where substantial numbers of individuals have out-migrated. In the former case, the non-family (typically young) individual may have no relatives or friends with whom to live and may thus be forced into a one-person household. In the latter case, out-migrating young individuals may leave behind older non-family relatives who are subsequently forced into living alone because of the absence of the younger kin.
- (4) The City Size Factor. A final view is that for a variety of reasons one-person rates vary with the size of a city. Typically, one points to such other factors as the supply of suitable housing, income levels, and family connections in arguing that these vary systematically with city size.

It is also interesting to compare one-person rates for the CMA's taken together with rates for the rest of Ontario. Some comparative data are presented in Table 2.3. By 1976, the CMA's tended to have higher one-person rates for virtually all cohorts with the exception of elderly not-marrieds. This pattern however, represents a substantial change from earlier time periods. In 1966

for example the non-CMA area had higher one-person rates for all over-44 age groups with the exception of married females. By 1976, much of this pattern had been reversed. This is reflected in the much higher annual increases in one-person rates (in Table 2.3) in this age group in Ontario CMA's compared to the rest of the province.

Table 2.3 provides an additional insight into the growth of one-person households in urban areas just described in Figure 1.2. It would appear that at least since 1966 (the earliest date for which these cohort data are available) the growth of the one-person household in the CMA areas (if not all urban areas) relative to the rest of the province has arisen from two sources. One is the sustained higher incidence of one-person households among the young in CMA areas combined with a rapid increase in the size of younger cohorts over this time period. The second is that the CMA areas have caught up or even exceeded traditionally high one-person rates among older age cohorts in non-CMA Ontario. Thus, whereas in 1966 the one-person household was a youthful phenomenon in CMA Ontario and an elderly phenomenon in the rest of the province, by 1976 it had become in the CMA areas a phenomenon which crossed all age groups and marital statuses.

2.4 Some Conclusions

Let us return to the eight "explanations" alluded to at the outset of this paper. The data presented so far can be used to estimate the empirical significance of some of these explanations. While recognizing that a number of factors together may lie behind any one individual's choice, an attempt is made here merely to generate some plausible upper limit estimates for specific explanations.

The demographic explanation has been the central focus of this section.

Table 2.3: One Person Rates in 1976 and Annual Average Growth Rates Since 1966 by Area, Age, Sex, and Marital Status

Age and Area	Males			Females		
	1976 Rate	Married Annual Increase Since 1966 (%)	Other 1976 Rate Annual Increase Since 1966 (%)	1976 Rate Annual Increase Since 1966 (%)	Other 1976 Rate Annual Increase Since 1966 (%)	Annual Increase Since 1966 (%)
15-24 years						
Ontario CMA's	.011	10	.036	.010	.050	14
Other Ontario	.008	10	.025	.004	.028	15
25-34 years						
Ontario CMA's	.018	14	.260	.011	.296	7
Other Ontario	.012	13	.185	.004	.185	9
35-44 years						
Ontario CMA's	.016	10	.339	.007	.269	3
Other Ontario	.011	8	.226	.004	.128	0
45-54 years						
Ontario CMA's	.017	6	.345	.013	.314	3
Other Ontario	.012	3	.298	.008	.254	2
55-64 years						
Ontario CMA's	.018	5	.395	.022	.461	5
Other Ontario	.016	1	.397	.015	.478	3
65 and Over						
Ontario CMA's	.021	5	.389	.032	.478	5
Other Ontario	.021	0	.431	.024	.519	3

Note: As an example, the 1966 rate for 25-34 year old Male Others in Ontario CMA's was .114 = .260/(1.09)¹⁰.

Source: Computed from the 1966 and 1976 Census of Canada

It has been found that at most about 32% (78,300) of the increase in one-person households between 1966 and 1976 can be attributed to changes in the age, sex and marital status of the population alone. By comparing Figure 2.4 and 2.1 (b), it can be seen that just under one-half (37,500) of this 32% increase arose from changes in the number of under 35 singles. This reflects primarily the maturing postwar baby boom but also to some degree the shift away from marriage among young adults that started in the early 1970's. By comparing Figures 2.4 and 2.1 (b), it can also be seen that over one-third (27,400) of this 32% increase arose from changes in the number of not-married (principally widowed) females aged 55 or older. This reflects in part the increasing differences between the sexes in mortality rates and thus the increasing likelihood that elderly women will be widows.

All of the conclusions in the above paragraph are based on "estimates" of what the 1976 stock of one-person households would have looked like if the one-person rates for 1976 had been the same as for 1966. However, fully 68% of the increase between 1966 and 1976 has to be accounted for in terms of changing one-person rates (in conjunction with changes in age, sex, and marital status patterns). This means that the remaining seven explanations might account for about 2/3 of all the observed increase.

By comparing Figure 2.1 (a) and 2.4, it is possible to estimate the changes in number of one-person households which are attributable at least in part to non-demographic sources. There was an increase of (448,925 - 284,600) = 164,325 one-person households between 1966 and 1976 which could not be accounted for by married individuals. This may well be attributable to the divorce explanation. There is little in the way of hard data but one might reasonably expect that a large proportion of these are individuals waiting out a three-year separation before obtaining a divorce.

In a similar manner, it is possible to also provide a crude estimate of the impact of earlier home-leaving ages. Comparing Figure 2.1 (a) and 2.4, it can be seen that changes in one-person rates have potentially accounted for 46,400 one-person households among under-35 not-marrieds. This might be considered an upper estimate of the effect of earlier home-leaving. On the one hand, it captures those young individuals who increasingly tend to move (directly) from their parents' home into a one-person household. On the other hand, there may be a tendency for young adults to share accommodation when first leaving home and thence after a while to move into a one-person household. To this extent, earlier home-leaving may well reduce the typical age at which one moves into a one-person household. This second (indirect) effect of earlier home-leaving should also be captured in the 46,400 figure provided that this indirect effect has taken place before age 35.

A problem with interpreting the 46,400 figures as the direct and indirect effect of earlier home-leaving is that other explanations may also be operative here. It is possible to find, even in a society where the typical age of home leaving is static, an increasing one-person rate among young not-married adults. For whatever reason, young adults living away from their parents' homes could be increasingly choosing to live alone rather than with other persons. It is difficult for example to detect how many of these 46,400 households are the consequences of an increasing affluence, changes in home technology, minor structural changes, or earlier ages of home-leaving.

A similar problem emerges when looking at the social fragmentation and the government subsidy explanations. Government subsidies to one-person households tend to be concentrated among the elderly and this is also where the social fragmentation effects are commonly thought to be concentrated. By

comparing Figures 2.1 (a) and 2.4 again, it can be seen that there are about 73,500 not-marrieds aged 55 or older living alone in 1976 who were not predicted using 1966 one-person rates. Presumably some of these "new" one-person households are mainly the consequence of senior citizen housing programs, some may be better described as mainly the consequence of social fragmentation, while others may have arisen primarily because of improved levels of income or wealth.

Remembering that our estimates are crude upper limits that do not consider the simultaneity of explanations, let us summarize by drawing up the following box scores to this point.

Total change in one-person households; 1966-1976		242,600
Demographic Changes alone	About	78,300
Baby boom and shift away from marriage	Up to	37,500
Widowhood	Up to	27,400
Other (Residual)	At least	13,400
Other changes	About	164,300
Separation of spouses	Up to	25,000
Home-leaving and affluence among young adults	Up to	46,400
Social Fragmentation, Subsidies, affluence among elderly	Up to	73,500
Other (Residual)	At least	19,400

In addition, the home technology and minor structural change explanations have also had effects on the formation of one-person households but it has not been possible to decipher these.

Section 3: Comparative Income Distributions

It has been argued above that the growth of one-person households is partly a consequence of an increasing affluence in our society. This affluence manifests itself in two ways. On the one hand, living alone is commonly thought to be an income-elastic choice among non-family persons. Often, this is because living alone is seen to enable one to better achieve personally-desirable levels of privacy and self-sufficiency. Whatever the incentive, an increased income is believed to make a nonfamily individual more likely to live alone. The second manifestation of affluence is through public housing assistance programs. During the generally affluent 1960's and 1970's, many housing programs were developed in Ontario to assist particular groups of disadvantaged persons in getting decent accommodation. One group receiving considerable attention has been the elderly; a group which includes a large number of one-person households.

In this section, these affluence arguments are empirically assessed in three parts. First, data are introduced to compare the incomes of one-person households with those of other sizes of household. Also, the incomes of one-person households are compared with similar individuals in other kinds of living arrangements. Secondly, an attempt is made using Survey of Housing Units data to estimate the impact of housing subsidy programs on the income distribution of one-person households. Finally, rough estimates are provided from cross-sectional data of the income elasticity of demand for the propensity to live alone.

3.1. Income Distributions for One-Person Households

The questions one would like to address in this subsection seem simple enough. How quickly are the incomes of nonfamily individuals in a particular

cohort increasing over time? Is there a shift towards living alone as such an individual's income rises? Yes, these are simple questions but any attempt to answer them is frustrated by a lack of historical data. It has not been common for agencies examining incomes to enquire about the household or family status of an individual.

One of the few useful sources of data is an occasional Statistics Canada publication entitled oddly "Household Facilities by Income and Other Characteristics." This publication has appeared sporadically since 1968. Average household incomes from that publication are summarized in Table 3.1 by size of household.

There are several noteworthy features in these data. They suggest that the one-person household has typically had a rising income over the 1968-1976 period. At the same time, the annual rate of increase of 7.3% has been only slightly ahead of inflation (the Consumer Price Index rose by 6.5% per year over the same period) and well behind the increase (9.7% per year) for other kinds of households. At first glance, this might suggest that one-person households, instead of being affluent, are in fact becoming worse off relative to other kinds of households and barely holding their own in terms of real income.

There are several problems in trying to make interpretations from Table 3.1. First, these data are aggregate averages and do not control for cohort mix. The one-person household group in 1976 for example likely contains many more young adults than did the 1968 group. To the extent that these individuals have lower incomes than do other one-person households, their steady flow between 1968 and 1976 may have kept the average income of such households from rising faster. In addition, the proliferation of

Table 3.1: Average Household Income by Household Size; Ontario, 1968-1976

<u>Year</u>	<u>Average Income of Household</u>	
	<u>1 Person</u> (<u>\$</u>)	<u>2+ Persons</u> (<u>\$</u>)
1968	4,077	8,446
1972	5,168	11,590
1974	6,184	13,759
1976	7,186	17,739
Annual Rate of Increase	7.3%	9.7%

Note: These are current dollar values.

Source: Household Facilities by Income and Other Characteristics.
Statistics Canada, Selected Years.

housing assistance programs over this period may also have kept the average income of one-person households from rising faster by creating many new dwellings specifically for low-income individuals.

However, historical data are not available for cohort disaggregations. Instead, we must rely on two large cross-sectional microdata files; one being a 1% Public Use Sample (PUS) drawn from the 1971 Census covering Ontario and the other being the Ontario sample of CMHC's 1974 Survey of Housing Units (SHU). These two files are large enough to permit the kind of detailed analysis of cohort income patterns sought here.

Using the Public Use Sample for Ontario from the 1971 census, it is possible to derive comparable income distributions for households of different sizes and/or individuals in different kinds of living arrangements by cohort. These comparative data have been graphed in Figure 3.1 for males and in 3.2 for females in three different age groups (15-34, 35-54, 55+).⁸ In each case, the solid dark line is the income distribution for one-person households in that sex and age cohort. The dotted light line is the total household income distribution for households containing two-plus persons and headed by a person in that cohort. The two other lines represent individual income distributions; one is the distribution for individuals in that cohort who are heads (or spouses of heads) of families and the other is the distribution for non-family individuals in that cohort.

Let us consider first the distributions for males in Figure 3.1. For all three age cohorts displayed, the one-person household tends to have lower incomes than do households containing two-plus persons. This is the same differential found in relation to Table 3.1 but it is interesting to note that the differential is maintained even when controlling for sex and specific age groups. What is perhaps a little more surprising is that males living

Figure 3.1: Income Distributions for Male-Headed Households and Male Individuals by Age Cohort; Ontario Public Use Sample, 1971.

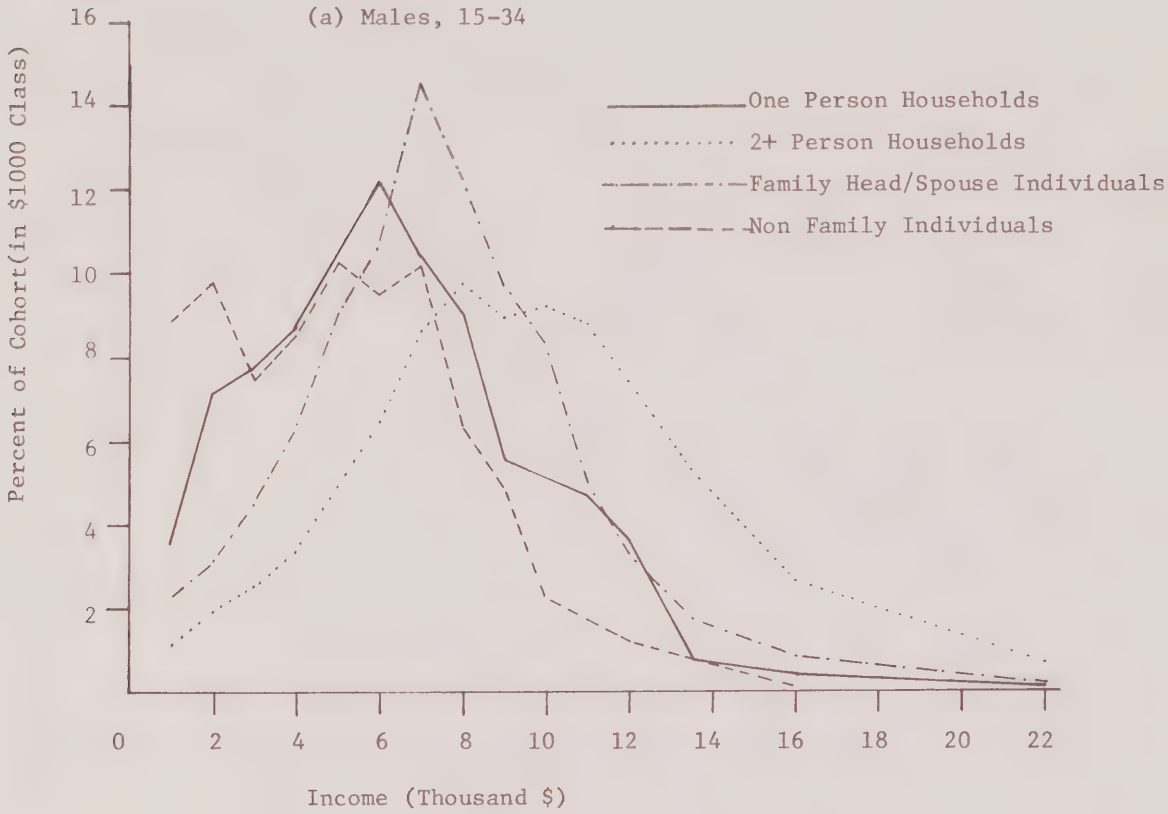


Figure 3.1: Continued

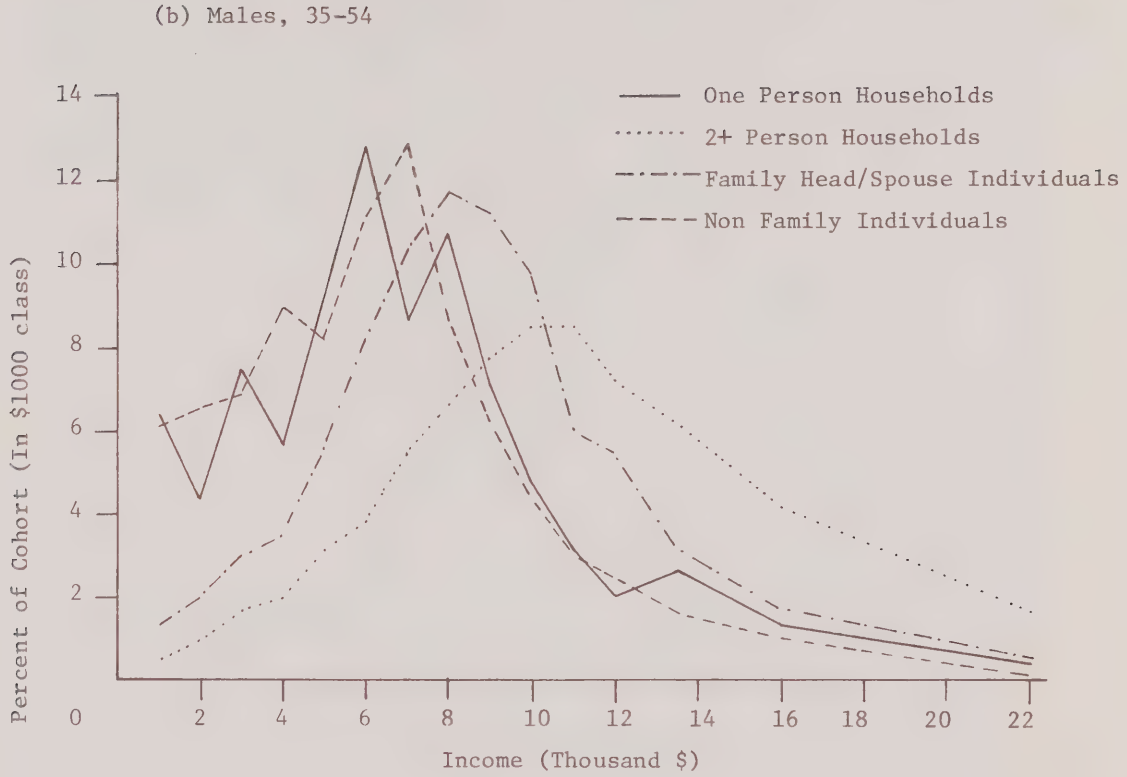
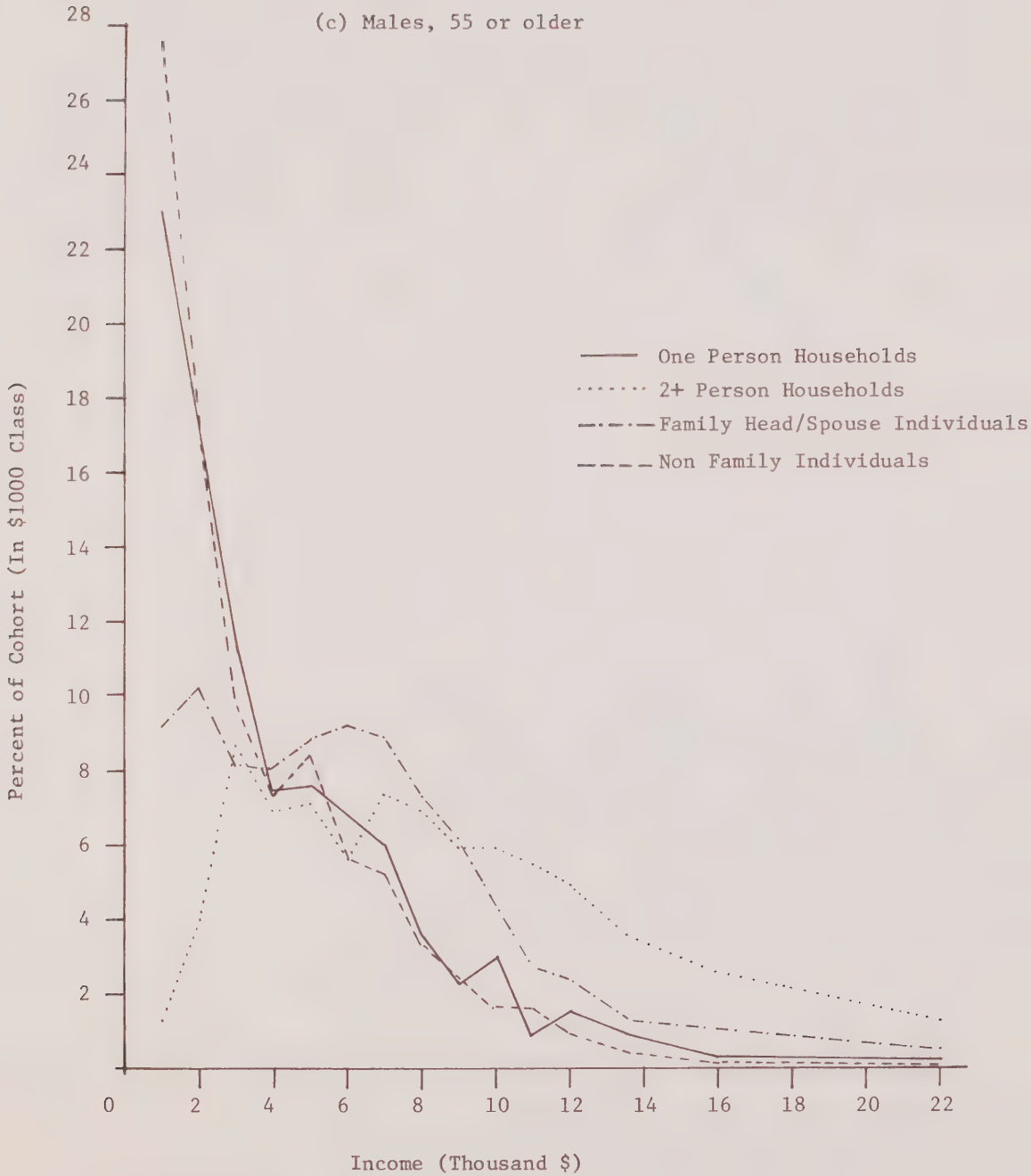


Figure 3.1: Continued



Source: See text

Figure 3.2: Income Distributions for Female-Headed Households and Female Individuals by Age Cohort; Ontario Public Use Sample, 1971.

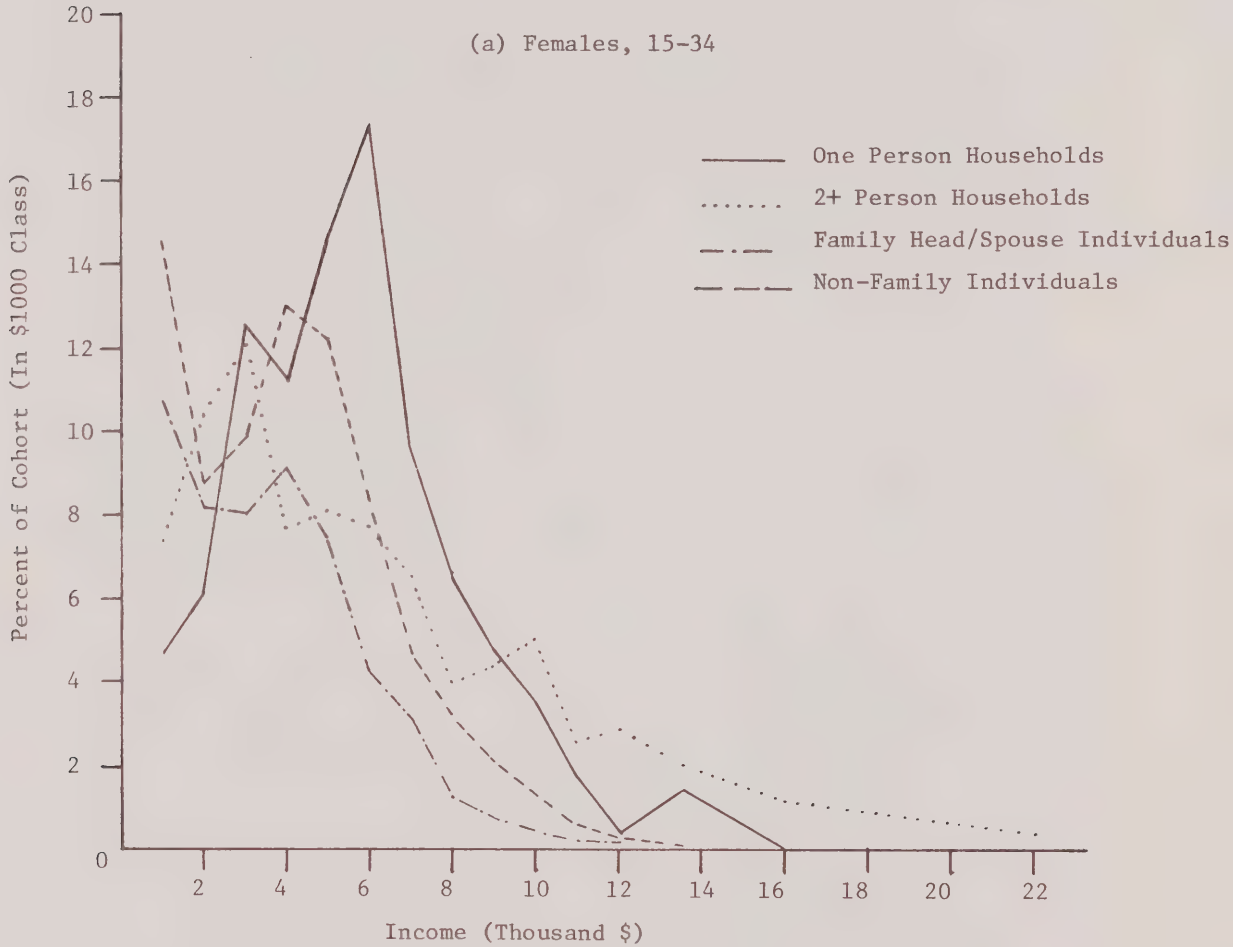


Figure 3.2: Continued

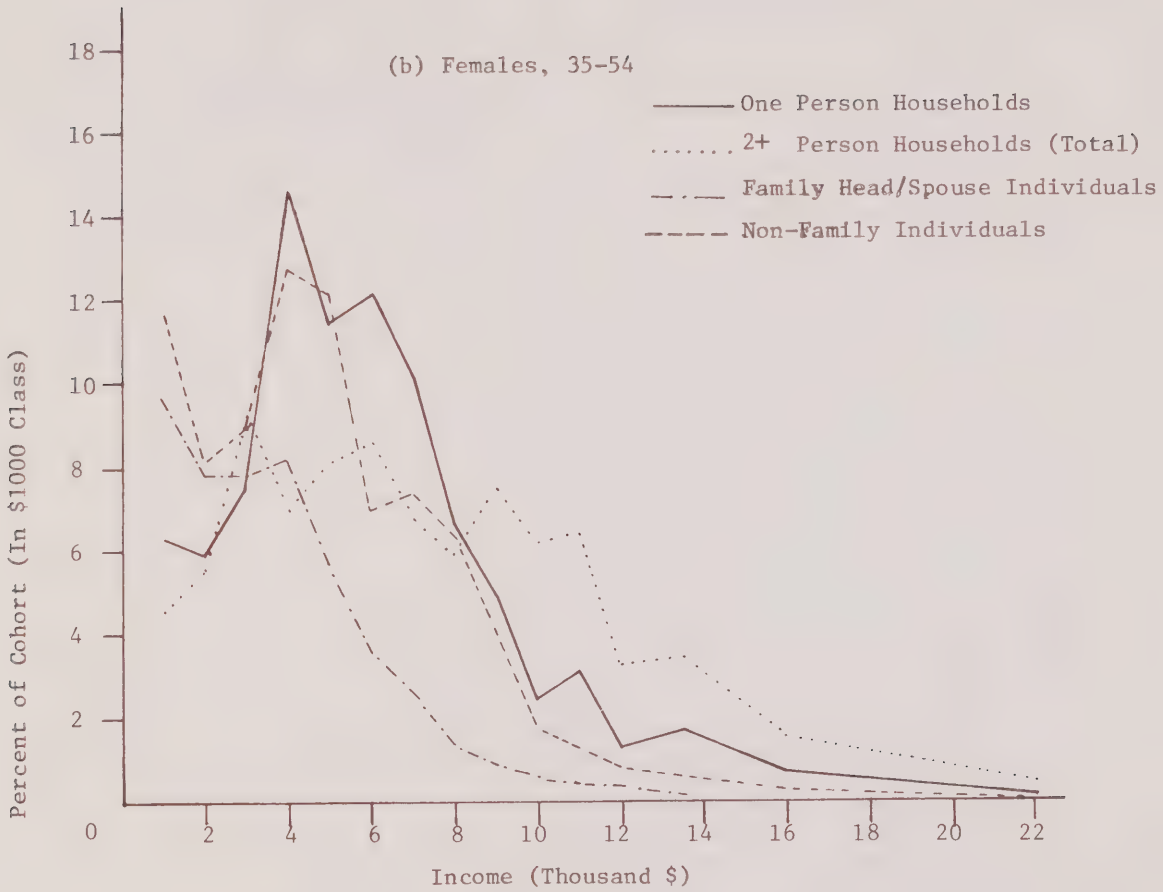
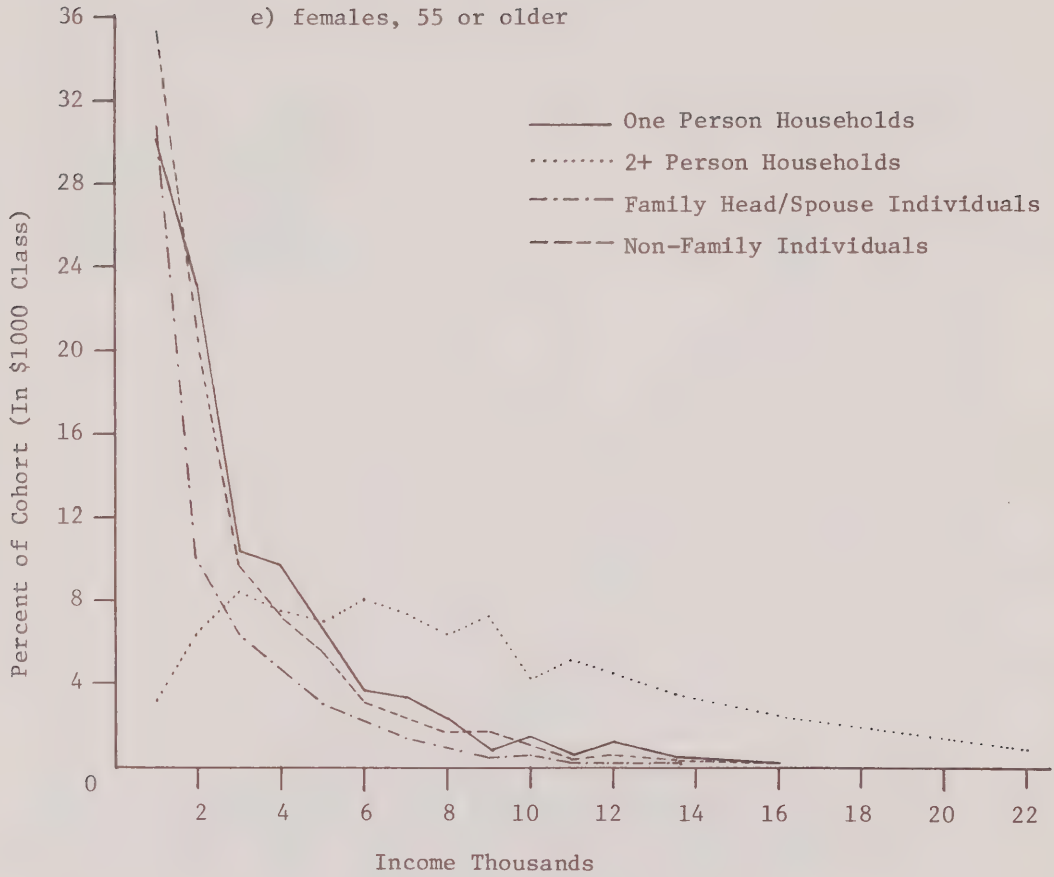


Figure 3.2: Continued



Source: See text

alone also tend to have lower incomes than do similar males who are family heads. It is not clear why this should be so although one could speculate at length on this. It is notable in addition that the income distribution for one-person households tends to lie to the right of that for non-family males in general. This trend is more pronounced in the younger age group and disappears for the 55+ age group. Remembering that the set of non-family individuals includes one-person households as a subgroup, it can be concluded that males living alone are substantially better off than are other non-family males in the under-55 age groups. This latter observation is the first piece of evidence to suggest that males living alone are better off than other non-family males in general.

Let us now consider the female data in Figure 3.2. There are some striking differences between these distributions for females and the earlier distribution for males. As before, females living alone tend to have lower total incomes than do 2+ person households headed by females at the same age. However, the differential is not nearly as marked as it is for males. Also, this is where the comparability with males ends. The incomes of females living alone tend to be higher than either those of females who are heads (or spouses of heads) of families or who are non-family individuals. Thus, it is clear that women living alone tend to be substantially better off than are virtually any other comparable group of women. This is quite different from the pattern found for males wherein the one-person household tended to be not as well off as the family head. This supports a commonly-made argument that women living alone are different in their characteristics from men living alone.

We are now in a position to draw some conclusions about the well-being

of one-person households based on these 1971 data. It is now clear that both men and women living alone tend to be better off than other similar non-family individuals. The difference is most apparent among the younger age groups and disappears for the most part among the elderly. Women living alone tend also to be better off than are comparable women who are family heads or spouses although this is not true for men. Some initial support is thus found for the idea that the incidence of one-person households is related to affluence. We return to this idea again in section 3.3 but let us first look at an estimate of the impact of public housing assistance programs.

3.2. The Effect of Public Housing Assistance Programs

The period since approximately 1965 has been one in which a large number of new housing assistance programs were developed at the provincial, federal, and municipal level. The general intent of these programs has been to provide better access to suitable housing for low and moderate income households. The means employed by various programs have been quite varied but include (i) tax shelters for personal savings applied to an initial home purchase, (ii) capital funding including favorable interest rates and forgivable loans for developers and renovators of low-income housing, (iii) rental assistance programs to locate low-income households in better housing, and (iv) subsidies and loans to moderate-income households to assist in purchasing and carrying new homes. A listing of these programs is found in Housing Ontario (November, 1977) and an update in Housing Ontario (August/September, 1978).

It is difficult to obtain data on the cohort and income characteristics of all persons who have benefitted from these programs. CMHC's Survey of Housing Units data provide perhaps the best (if somewhat flawed) picture currently available. In SHU, individuals were asked whether their rental or

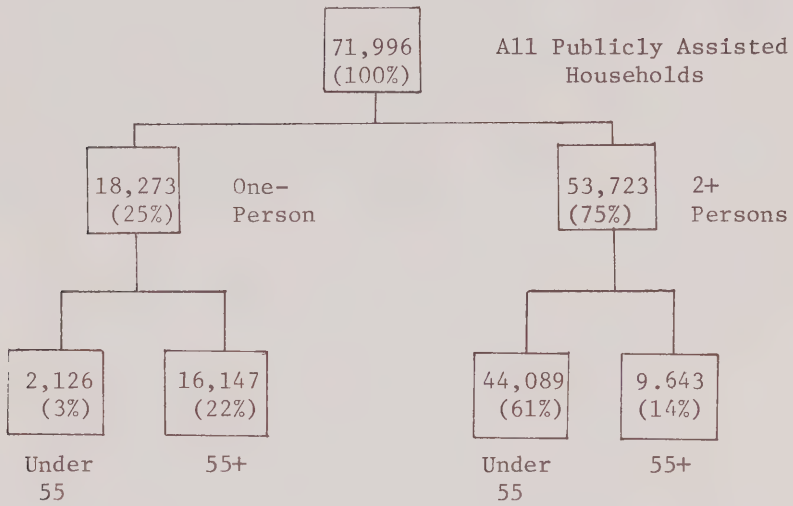
mortgage payments were reduced in any way by either some public or private assistance program.⁹ Their data therefore do not include households who were either unaware of the incidence of assistance or for whom assistance did not take the form of a direct rental or mortgage reduction. Nonetheless, the SHU data provide a picture of at least a broad class of households receiving housing assistance in the province.

It must be added that the SHU data do not cover Ontario. The survey covered only the 10 CMA's in the province and at that did not sample every municipality within each CMA. The SHU data presented here are thus estimates for what we refer to as the Ontario SHU areas; the CMA areas taken together.

In Figure 3.3 are presented the SHU estimates of the number of publicly-assisted households in included Ontario areas. It is estimated that there were approximately 72,000 assisted households. Of these 1/4 were of size one and 3/4 contained two or more persons. There are in addition striking differences in the typical age of head between these two sizes of assisted households. Most of the publicly-assisted 2+ person households were headed by an individual under 55 years of age. By contrast, most of the publicly-assisted households of size one consisted of persons over 55. Thus, publicly-assisted households tend to be either younger multiple-person households or elderly individuals living alone.

It is possible to calculate the relative incidence of housing assistance among different cohorts and household sizes. This is useful because it shows how many households are being assisted relative to the total number of households in that category. These data are presented in Table 3.2. The figure for government-assisted one-person households for males aged 65+ means for example that 13.1% of all males aged 65+ and living alone were subsidized by some public assistance program. These rates give a different

Figure 3.3: Categories of Assisted Households; Ontario SHU areas, 1974



Source: See text.

Table 3.2: Percent of One-Person and 2+ Person Households
Receiving Housing Assistance by Age and Sex of
Head; Ontario SHU areas, 1974.

<u>Sex and Age of Head</u>	One Person Hhld		2+ Person Hhld	
	Govt	Private	Govt	Private
	<u>Assisted</u>	<u>Assisted</u>	<u>Assisted</u>	<u>Assisted</u>
	(%)	(%)	(%)	(%)
Male				
15-24	0.0	4.6	3.9	2.4
25-34	0.6	2.7	4.0	2.4
35-44	1.9	1.8	2.4	3.0
45-54	3.1	1.8	2.6	2.3
55-64	12.2	3.1	1.2	3.1
65+	13.1	4.7	4.8	2.9
Female				
15-24	1.7	1.9	17.2	2.9
25-34	1.6	2.4	19.6	2.7
35-44	0.8	0.3	20.8	1.9
45-54	4.9	1.8	9.0	3.0
55-64	8.6	1.3	11.4	5.0
65+	17.5	4.7	5.5	5.4

Note: (1) Government Assisted includes dwelling units subsidized in part or in full via federal, provincial, or municipal housing projects as well as limited-dividend housing.

(2) Private Assisted includes dwelling units subsidized in part or in full by an employer or relative, by services to a landlord, or for some other reason.

Source: Computed from SHU Microdata File.

picture of the extent of public assistance then did Figure 3.3. Here it can be seen that government assistance to 2+ person households headed by males tends to be relatively uniform in incidence ranging from 1.2 to 4.8%. For 2+ person households headed by a female aged 44 or younger, the incidence of public assistance is much higher ranging between 17.2 and 20.8 per cent. This level of assistance drops off for older women. Public assistance for one-person households follows a much different pattern. For both male and females the level of support is negligible in the younger age groups but climbs to very high levels after about age 55.

There is a post-script here about the impact of publicly-assisted housing on one-person households. Suppose that one applies the SHU proportions in Table 3.2 to the 1976 numbers of one-person households by cohort in Figure 2.1. In doing this, it is implicitly assumed that the SHU data are representative of all Ontario in this respect and that the SHU estimates cover most of the publicly-subsidized one-person households. By this means, one arrives at an estimate of 32,900 publicly-subsidized one-person households in Ontario in 1976.

How many of these 32,900 individuals are living alone strictly because they have benefitted from subsidy programs? It is not possible to answer this question directly but intuitively one might expect that the number is considerably smaller than 32,900. In any event, one can now attempt to decompose the estimates provided in section 2.4. There, it was argued that social fragmentation, subsidies, and increasing affluence among the elderly might have accounted for as many as 73,500 new one-person households between 1966 and 1976. Since many of our housing assistance programs post date 1966 it is possible that up to around 30 thousand of these new households are attributable to such programs. This would leave at least about 44 thousand

households attributable to the remaining social fragmentation and affluence arguments.

At the same time, it is also clear that one-person households receiving public housing assistance tend to have quite low incomes. Some support for this argument is presented in Table 3.3. It can be seen there that approximately 99 per cent of all one-person households receiving assistance have total incomes under \$4,500 per year. Such a figure when combined with the data in Table 3.2 suggest that it may be misleading to look at overall income distributions as has been the case in Figure 3.1 and 3.2. Particularly among the elderly, the existence of housing assistance programs for persons living alone breaks the connection between this living arrangement and the incomes of individuals.

It is possible using the 1974 Survey of Housing Units to separate assisted households from unassisted households. Such a separation is described for males and females aged 55 or older in figure 3.4. There it can be seen that the incomes of unassisted one-person households tend to be higher than the incomes of one-person households in general. Further, when considered alone these unassisted one-person households have an income distribution which is considerably different from that of non-PNF (Primary Nuclear Family) individuals in general.¹⁰ This suggests that the similarity between the income distribution of one-person households and non-family individuals alluded to in Figures 3.1 and 3.2 arises principally because of the incidence of housing assistance among the elderly poor.

3.3. Cohort Income Elasticities

Economists have long used income elasticities to show the sensitivity of consumption of a certain good or service to changes in income. An elasticity is defined to be the percentage change in consumption associated with a 1%

Table 3.3: Percent of One Person Households Receiving Housing Assistance
by Income Groups; Ontario SHU areas, 1974.

<u>Income Group</u>	<u>Govt Assisted</u>	<u>Private Assisted</u>
Under \$500.	15.4	1.6
500-1499	8.9	4.0
1500-2499	28.5	5.7
2500-3499	20.0	3.1
3500-4499	5.9	3.3
4500+	1.0	2.3
All	100%	100%

Note: (1) See notes to Table 3.2.

(2) Income includes wages and salaries, net business income, government transfer payments, interest, dividends, rental income, pensions, and other money income.

Source: Computed for SHU Microdata File.

Figure 3.4: Income Distribution for One-Person Households and Individuals Aged 55 or Older by Sex; Ontario SHU areas, 1974.

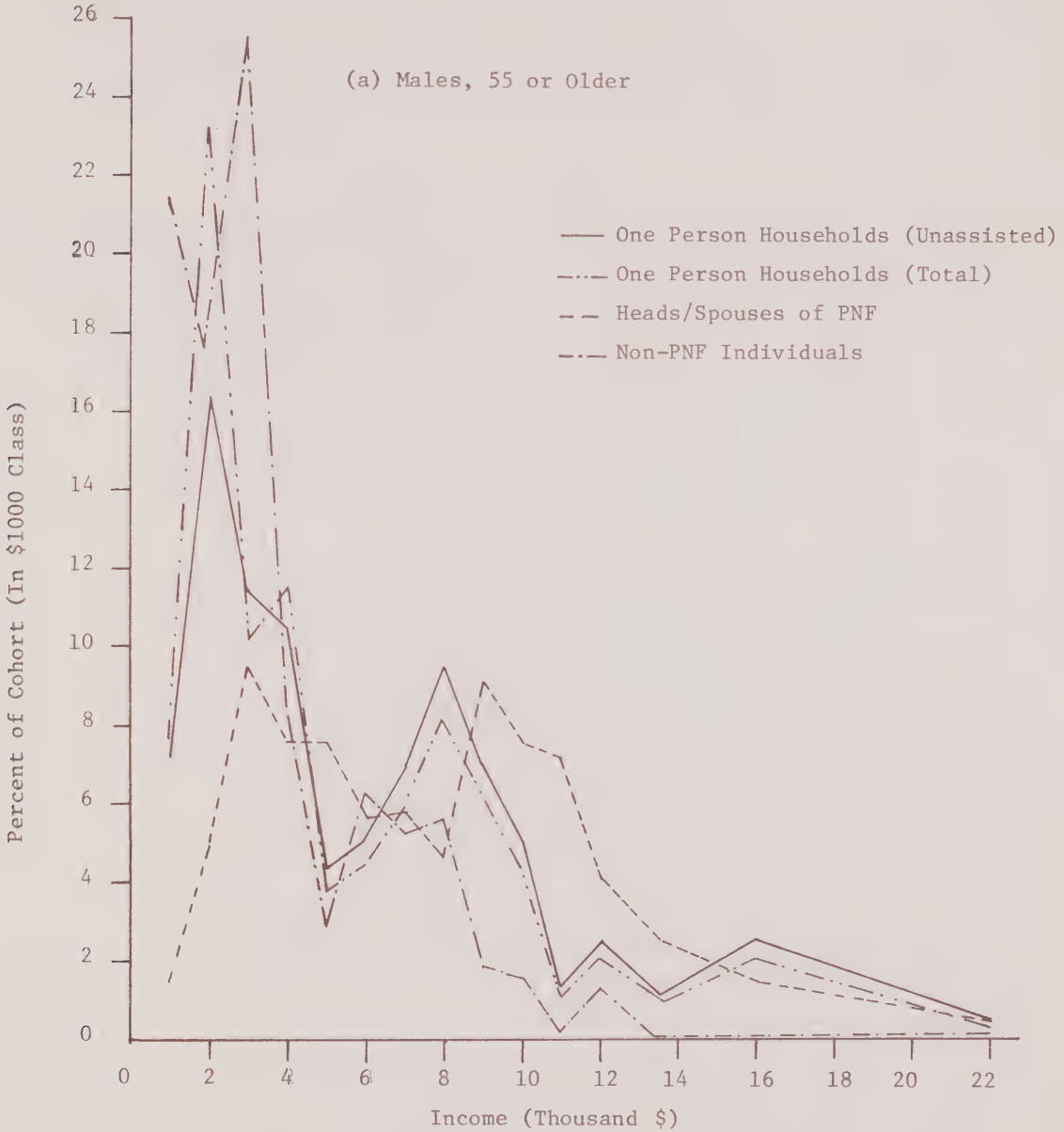
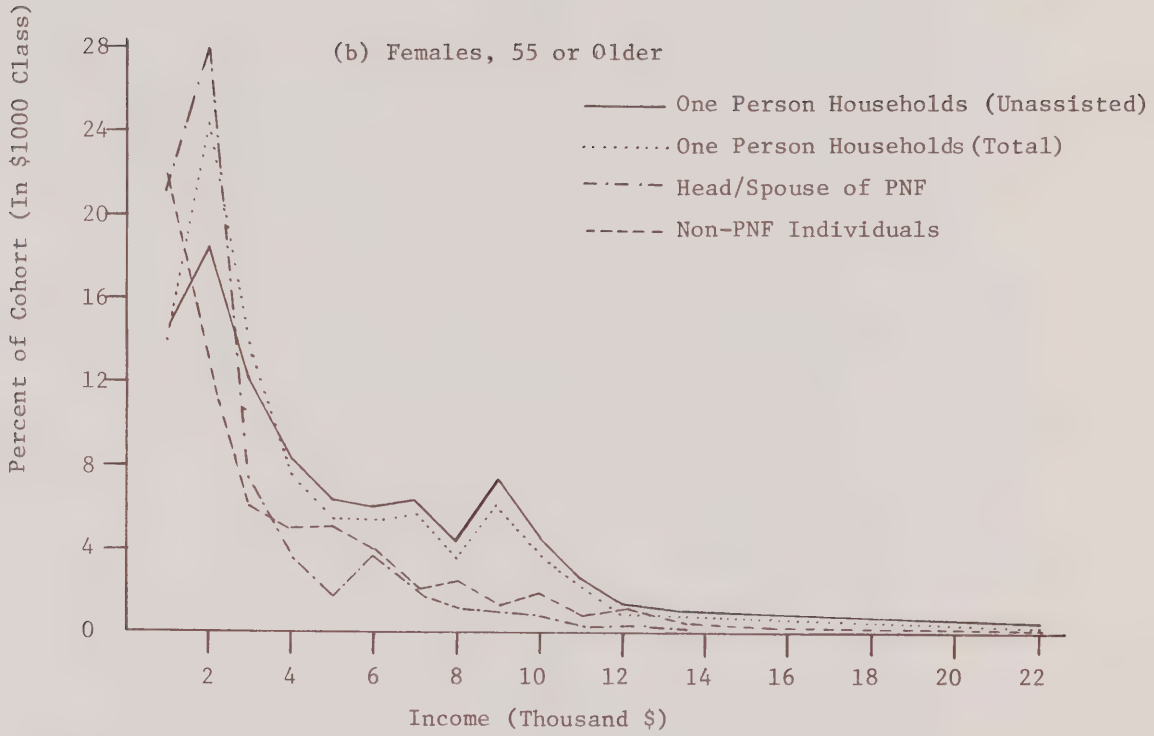


Figure 3.4: Continued



Source: See Text

relative increase in income. If, for example, an individual's income were to rise by 10% and his consumption of a certain good were then seen to rise by 8%, his income elasticity would be $8/10 = 0.8$.

In this subsection, we shall examine some income elasticities for the propensity to live alone. These are calculated according to the following method

- (1) From the 1974 SHU file, all individuals in a certain cohort (say, for example, single males aged 25-34) are selected. For each individual, information is obtained on that person's income and whether or not that person resides in a one-person household.
- (2) These individuals are grouped into income classes centred on \$1,000 values (500, 500-1499, 1500-2499, 2500-3499,...., 19500-20,499). Individuals with incomes of \$20,500 or more are ignored because of small sample sizes. Within each income class, the proportion of the cohort which resides in one-person households is calculated.¹¹
- (3) A Weighted Least Squares Regression is estimated with the proportion of an income class living alone as the dependent variable and the class's mid-income as the independent variable. The resulting slope coefficient is multiplied by the average cohort income and divided by the cohort proportion living alone to yield the income elasticity. A separate elasticity is measured for each age (6 groups), sex, and marital status (2 groups) cohort.¹²

The results of applying this method are described in Table 3.4. Some interesting patterns can be observed. The income elasticities tend to be higher for younger cohorts and lowest among the elderly. Further, the elasticities are based on statistically significant slope coefficients for almost all single cohorts but only a few of the Widowed, Divorced, or Separated (W/D/S) cohorts. Finally, as will be seen in section 4, these elasticities are relatively quite large.

These elasticity estimates suggest that increasing affluence over the years may well have caused the rapid increases in one-person rates described earlier in Table 2.1. Further support is found in the way in which the

Table 3.4: The Effect of Income on the Propensity to Live Alone Among Not-Married and Separated Individuals; Ontario SHU Areas, 1974.

	Single						Widowed/Divorced/Separated					
	$\hat{\beta}_0$	$\hat{\beta}_1$	R ²	\bar{Y}	\bar{P}	ξ	$\hat{\beta}_0$	$\hat{\beta}_1$	R ²	\bar{Y}	\bar{P}	ξ
Males												
15-24	-.007	.018*	.374	1.96	.028	1.2	---	---	---	---	---	---
25-34	.049	.025*	.607	7.75	.242	0.8	.040	.046*	.736	8.30	.420	0.9
35-44	.039	.029*	.396	8.91	.293	0.9	.037	.030*	.345	7.63	.263	0.9
45-54	.023	.044*	.508	6.07	.290	0.9	.186	.012	.363	6.73	.269	0.3
55-64	.030	.053*	.589	6.49	.372	0.9	.285	.021	.334	6.72	.424	0.3
65+	.229	.028	.385	3.59	.329	0.3	.194	.048*	.641	2.89	.333	0.4
Females												
15-24	.000	.032*	.697	1.67	.053	1.0	---	---	---	---	---	---
25-34	.193	.023*	.570	6.76	.345	0.4	-0.071	.029*	.465	5.34	.083	1.9
35-44	-.068	.042*	.433	8.42	.283	0.6	.015	.016	.167	6.86	.125	0.9
45-54	.099	.027	.303	7.13	.292	0.7	.219	.017	.314	5.64	.315	0.3
55-64	.232	.057*	.756	6.62	.612	0.6	.368	.032*	.511	5.66	.548	0.3
65+	.318	.039	.697	3.62	.458	0.3	.411	.046*	.260	2.83	.542	0.2

- Notes: (1) Married (Not Separated) Cohorts excluded because of small sample sizes
(2) Fitted equation using Weighted Least Squares. $P = \hat{\beta}_0 + \hat{\beta}_1 \bar{Y}_i + e_i$ $i=1,2,\dots,20$ income classes.
(3) Elasticity: $\xi = \hat{\beta}_1 \bar{Y}/P$
(4) *denotes coefficient significant at the 95% level
(5) measured in thousands of dollars. P is the proportion of the cohort living alone.
(6) ---excluded because of small sample size.

Source: See text.

elasticity estimates match up against rates of increase of one-person rates in Table 2.1. The youngest age cohorts have experienced the most rapid increase in one-person rates and correspondingly have the highest elasticities. The oldest age groups conversely had the lowest increase and the smallest elasticities. These data thus support the contention that increasing affluence lies behind the rise of the one-person household.

At the same time however, some cautionary notes are in order. The elasticities derived above are cross-sectional. They are based on changes in the propensity to live alone among different individuals having different incomes. They are not based on the changing propensity to live alone of the same individuals observed over time with changing incomes. In other words, what we are doing is assuming that, if the Smiths are better off than the Jones' and more likely to live alone in 1974, that when the Jones' reach the same level of (real) income as the Smiths (say in 1980) they will share that higher propensity to live alone. Given the lack of temporal data, this is the best that we can do at present.

A second cautionary note is in order in regard to causality. When we observe that the Smiths are better off than the Jones' and more likely to live alone, we conclude that this is because of their higher incomes. The reverse argument might also be true however. Suppose that the Smiths like to live alone but realize how expensive it is. They might then be more likely to seek a job or other source of income in order to sustain that living arrangement. In other words, have certain non-family individuals become more affluent in order to support a certain living arrangement or are their incomes rising and as a consequence increasingly choosing to live in one-person households? If the answer is the former, then our cross-sectional elasticity

estimates may be overestimating the temporal elasticities. Those Jones' with lower incomes who are not currently living alone may well choose to spend future income gains in a manner different from the Smiths.

Section 4: Dwelling Characteristics of One-Person Households

In this section, let us turn our attention to the kinds of dwelling units occupied by one-person households. The characteristics to be examined will include the type of dwelling occupied (e.g., detached, apartment), the tenure of occupancy (owner-occupancy versus rental), the number of rooms in the dwelling unit, and the total floor area of the dwelling unit. Usually a dwelling unit with a large floor area also has a large number of rooms, often is owner-occupied, and usually is a detached dwelling unit. Thus, these measures of dwelling unit characteristics are often interrelated. At the same time however it is also possible to find dwelling units which are for example larger in terms of floor area but which have either relatively few rooms, are rented, or are some other type of dwelling unit than detached. For this reason, it is helpful to look at a number of different dwelling unit characteristics.

Our purpose in this section is three-fold. First, there exists relatively little published data on the dwelling units occupied by one-person households. This section makes extensive use of the 1971 Census Public Use Sample for Ontario and the 1974 Survey of Housing Units in providing a detailed picture of dwelling unit characteristics by age, sex, and marital status cohorts. Substantial differences are found among these cohorts. Substantial differences are also found between the PUS and SHU data reflecting the very different areal coverages of the two surveys. To repeat, the PUS estimates are province-wide while the SHU data cover only Ontario CMA areas. The differences between the two sets of data suggest the different nature of the one-person household in CMA and non-CMA areas.

A secondary motive in laying out the type of dwelling characteristics of different cohorts is to assess the implication for housing demand of projections

of future numbers of one-person households. The results of this work are described in Section 5 following. These relationships are somewhat tenuous, based as they are on patterns found at only one prior point in time (either 1971 or 1974). Nevertheless, these relationships provide at least a crude basis for interpreting some of the implications of projections of future numbers of one-person households.

The second objective in this section is to assess an argument about the extent of "overhousing" among one-person households. It has been commonly asserted that one-person households arising by "default", as when a spouse dies or moves out, typically continue to live in a dwelling unit which is now too large for their "needs". At times when the housing market is tight, an accusatory finger is commonly pointed at such households. An assertion is then made to the effect that if only these households would move into smaller sizes of dwelling the vacated dwelling unit could be then used by a larger household. No attempt is made here to justify or condemn this argument. Rather, we shall merely attempt to assess just how many of these "overhoused" one-person households there might be.

The third objective of this section is to examine income elasticities of demand for the size of dwelling unit. In the preceding Section 3, income elasticities were estimated for the propensity to live alone. In this section, one-person households in particular cohorts are examined as to how either total floor space or the number of rooms in the dwelling unit vary with the income of that household. It is possible by doing this to estimate the sensitivity of the size of dwelling occupied to potential future changes in real income levels.

4.1. Dwelling Characteristics by Cohort Groups

Begin by considering the type of dwelling occupied by one-person households. Some relevant data are presented by cohort group in Table 4.1. Let us examine

Table 4.1: Type of Dwelling Occupied by One-Person Households by Cohort Group; Ontario, 1971 and 1974

		1971 PUS Ontario				1974 SHU Ontario			
		<u>Detached</u> (%)	<u>Semi/ Row</u> (%)	<u>Duplex/ Apt</u> (%)	<u>Estimated Total</u>	<u>Detached</u> (%)	<u>Semi/ Row</u> (%)	<u>Duplex/ Apt</u> (%)	<u>Estimated Total</u>
Male, Single									
15-34		12.9	7.3	79.8	23,300	5.2	4.0	90.8	29,500
35-54		30.9	10.5	58.6	15,200	10.2	0.9	89.0	11,000
55+		62.3	7.7	30.0	13,000	14.8	4.6	80.5	7,800
W/D/S									
15-34		8.3	6.3	85.4	4,600	7.1	3.1	89.7	4,000
35-54		35.7	7.0	57.4	12,900	17.0	9.7	73.3	7,100
55+		59.2	4.5	36.2	28,700	48.0	8.3	43.6	11,500
Female, Single									
15-34		9.3	3.1	87.6	19,300	2.0	0.6	97.4	34,800
35-54		16.4	5.2	78.4	13,400	13.6	1.2	85.2	10,600
55+		35.7	4.7	59.6	23,500	25.8	0.7	73.5	20,100
W/D/S									
15-34		0.0	8.6	91.4	3,500	16.9	0.0	83.2	2,800
35-54		28.9	4.0	67.1	14,900	30.7	2.2	67.1	13,000
55+		46.5	5.2	48.3	113,800	31.9	3.6	64.5	69,200

Notes: (1) Married (Not Separated) excluded here because of small sample sizes.

(2) W/D/S - Widowed, Divorced, and Separated.

(3) The types of dwellings considered are as follows

- (a) Detached: Detached dwelling or dwelling attached on one side only to a non-residential structure.
- (b) Semi/Row: Semi-detached, double or row house.
- (c) Duplex/Apt: Duplex, flat, apartment.

Source: 1971 PUS Microdata File
1974 SHU Microdata File

first the province-wide Public Use Sample (1971) data for all cohorts. Increasing age brings about an increasing incidence of detached dwelling units and a decreasing incidence of either duplexes or apartments among one-person households. The difference between singles and W/D/S (Widowed, Divorced, or Separated) tends to be quite small for males. In other words, at the same ages single males are about as likely as W/D/S males to occupy detached dwelling units. This is somewhat surprising since it is often asserted that widowed, divorced, or separated men live alone in detached units mainly because they had at some earlier stage been married and not bothered to relocate when their housing "needs" diminished with the departure of a spouse. The conventional wisdom is upheld to some extent in the case of females. Single women do tend to be much less likely to occupy a detached dwelling unit than do W/D/S women living alone at the same age. At the same time, it is noteworthy that for both of these marital status groups, the tendency to occupy detached dwelling units is substantially lower than it is for males at corresponding ages.

Data from the CMA-based (1974) SHU show some similarities with the above observations but also some striking differences. As before, the occupancy of detached dwelling units tends to increase with age for all sex and marital status cohorts. However, for males there is no longer a broad similarity between single and W/D/S cohorts. As with females, there is a sharply higher tendency to occupy detached dwelling units among the W/D/S groups. For all cohorts, one-person households tend to be much less likely to occupy detached dwelling units than in the province-wide PUS data. This may well reflect higher housing prices and the greater availability of apartment accommodation in the SHU areas compared to the rest of Ontario. The distinction is quite pronounced in the case of single males aged 55 or older where 62% lived in detached dwelling units in 1971 in Ontario overall but only about 15% lived in this

kind of accomodation in SHU areas in 1974. This re-emphasizes the very significant differences between larger urban centres (CMA's) and the rest of the province.

Variations in tenure tend to conform to the above variations in type of dwelling occupied as can be seen in Table 4.2. One-person households tend to be owner occupiers to about the same extent that they also occupy detached dwelling units. For males however, this relationship is not always one to one. Over 62% of single males aged 55 or over and living alone were found in detached units in 1971 but only 53% of this cohort were owner-occupiers. This means that at least 9% (if not more) of this cohort were residing in rented detached dwellings. By contrast, consider the same cohort in 1974 SHU data. There, less than 15% of the cohort resided in detached dwelling units but almost 25% were owner occupiers. This pattern indicates that in larger urban areas owner-occupancy takes place to a substantial degree in something other than detached dwellings. The distinction between larger urban areas and the rest of the province is again very evident.

Consider now the number of rooms in dwelling units occupied by one-person households. Some relevant data are presented in Table 4.3. Again, let us consider the 1971 PUS data first. The most common size of dwelling is 3-4 rooms for all age, sex, and marital status categories. Further, there is a shift away from 1-2 room dwelling units and towards 5+ room dwelling units with increasing age. This pattern matches with the increasing tendency towards detached dwelling units described above. Further there does not appear to be much difference between singles and W/D/S individuals.

Table 4.2 Percent of One Person Households Who are Owner-Occupiers by Cohort Group; Ontario, 1971 and 1974.

	<u>1971</u> <u>PUS</u> <u>(%)</u>	<u>1974</u> <u>SHU</u> <u>(%)</u>
Males, Single		
15-34	11.8	6.6
35-54	29.6	17.1
55+	53.4	25.9
W/D/S		
15-34	6.3	11.1
35-54	36.2	25.6
55+	56.3	55.7
Females, Single		
15-34	3.6	0.2
35-54	20.9	16.9
55+	41.7	31.2
W/D/S		
15-34	2.9	9.5
34-54	27.5	33.5
55+	50.7	36.1

Note:(1) Married (Not Separated) excluded here because of small sample sizes.

(2) W/D/S - Widowed, Divorced, and Separated.

(3) In the SHU File, a household could possibly neither be an owner-occupier nor a rent-paying tenant as when it occupies a dwelling but pays no cash rent. Such households have been excluded here.

Source: 1971 PUS Microdata File.

1974 SHU Microdata File.

Table 4.3: Percent Distribution of One Person Households by Number of Rooms in Dwelling Unit by Cohort Group; Ontario, 1971 and 1974

	Number of Rooms in Dwelling							
	1971 PUS Ontario				1974 SHU Ontario			
	1-2 (%)	3-4 (%)	5-6 (%)	7+ (%)	1-2 (%)	3-4 (%)	5-6 (%)	7+ (%)
Male, Single								
15-34	32.2	48.5	9.2	10.0	18.8	65.5	13.1	2.5
35-54	26.3	42.1	16.5	15.1	20.4	58.6	20.6	.4
55+	23.3	33.8	24.8	18.2	29.1	50.5	16.2	4.2
W/D/S								
15-34	25.0	50.0	18.7	6.2	3.4	75.2	17.0	4.4
35-54	22.3	42.3	22.3	13.1	22.8	51.4	23.2	2.6
55+	13.5	39.6	31.9	14.9	16.7	36.0	41.2	6.1
Female, Single								
15-34	25.8	63.9	5.2	4.6	17.6	79.0	3.4	0.0
35-54	25.2	51.9	16.3	5.9	6.0	73.8	15.8	4.4
55+	14.9	46.8	24.3	14.0	14.5	54.9	24.7	5.9
W/D/S								
15-34	11.4	77.1	11.4	0.0	3.9	78.3	17.1	.7
35-54	14.7	53.7	20.1	11.4	9.0	56.5	21.5	12.9
55+	11.6	39.8	34.2	14.4	13.1	45.0	33.1	8.0

- Notes: (1) W/D/S - Widowed, Divorced or Separated
(2) SHU definition includes rooms used for business while the Census definition does not.
(3) Married (Not Separated) excluded here because of small sample sizes.
(4) Excluded as rooms are bathrooms, halls, vestibules, unfinished basement or attic areas, and garages.

Source: 1971 PUS Microdata File
1974 SHU Microdata File

The largest size category considered in Table 4.3 is the 7+ room dwelling. It is noteworthy that males are more likely to live in this largest category than are females of the same age and marital status. For the oldest age group of W/D/S, the percentages in the largest dwelling size category are almost the same (14.9% for men versus 14.4% for women) although from Table 4.1 there are substantial differences in the proportions living in detached dwelling units (59.2% for men versus 46.5% for women). This suggests that, although elderly W/D/S men are more likely to be found in detached dwelling units, many of these dwelling units must contain six or fewer rooms. Indeed, these size of dwelling data suggest that many of the differences between the sexes in type of dwelling occupied found in Table 4.1 disappear when considering the number of rooms in a dwelling unit.

The SHU data present a much different story. The 3-4 room dwelling remains the most common size occupied by a one-person household. However, in SHU areas, this size is much more frequently found than in Ontario as a whole. Correspondingly, there tends to be a lower incidence of the largest size category (7+ rooms). While one-person households are more likely to be found in detached dwelling units in Ontario as a whole than in the SHU areas, those in SHU areas are much less likely to be found in the smallest size category (1-2 rooms). Thus, even though one-person households are more likely to be found in apartments in larger urban areas, such dwelling units typically are not as small as in the rest of the province. Further, among one-person households aged 35 or older, male cohorts tend to be more frequently found in the largest size of dwelling than are females with the opposite pattern occurring in the SHU areas in 1974. Again, this is another difference between CMA areas and the rest of the province.

Let us now turn to the final characteristic to be investigated; the total floor area occupied. The data in Table 4.4 are available only for the SHU areas. They bear a broad similarity to those in Tables 4.3 and 4.1. For example, among females under 55 there is a tendency towards larger floor areas with increasing age; a pattern that is reflected as well in Table 4.3. Among females aged 55 or older, there is a substantial dispersion of floor areas that is also quite similar to the pattern found when analysing total numbers of rooms. At the same time, there are considerable variations among cohorts in the proportion of the cohort residing in dwellings of 800 sq. ft. or more floor area; ranging from 0.8 to 17.9%. The proportion residing in 7+ rooms on the other hand varies from 0.0 to only 12.9%. This suggests that one-person households do make tradeoffs between numbers of rooms and total floor area.

4.2. A Footnote on "Over-Housing"

Tables 4.1, 4.3, and 4.4 allow a crude estimation of the extent of "over-housing" among one-person households. To do this however clearly requires a definition of "over-housing". The well-known difficulty here is that one must apply an arbitrary standard as to the housing "needs" of a household before counting any excess as over-housing. Depending on the choice of standard, different estimates of the extent of over-housing may be obtained. The estimates which follow are thus just a few of those possible.

The standard chosen here relates the housing choices of widowed, divorced or separated (W/D/S) persons to those of single persons living alone. It is assumed that the housing "needs" of W/D/S persons in each sex and age group should be similar to those of single persons with any differences attributable to "over-housing". A finding for example that 60% of all W/D/S one-person

Table 4.4: Percent Distribution of One-Person Households by Total Floor Area by Cohort Group; Ontario, 1974

	Total Floor Area (Sq. Ft.) of Dwelling				
	<u>≤ 199</u> (%)	<u>200-399</u> (%)	<u>400-599</u> (%)	<u>600-799</u> (%)	<u>≥ 800</u> (%)
Male, Single					
15-34	4.9	32.7	38.6	16.1	7.6
35-54	6.2	28.6	38.5	22.6	4.2
55+	3.1	52.7	19.3	17.8	7.0
W/D/S					
15-34	1.3	18.5	47.8	21.6	10.8
35-54	2.9	24.1	43.4	18.9	10.7
55+	2.8	24.7	26.8	28.2	17.4
Female, Single					
15-34	3.7	40.8	44.6	10.2	0.8
35-54	0.3	37.8	40.3	17.2	4.4
55+	3.1	30.2	37.9	15.3	13.6
W/D/S/					
15-34	2.4	19.8	62.2	10.8	4.8
35-54	1.1	22.8	39.3	18.9	17.9
55+	5.2	22.5	34.4	22.6	15.3

Notes: (1) Married (Not Separated) excluded here because of small sample sizes.
 (2) Floor Area is area measured in given rooms. See notes (2) and (4) in Table 4.3 for excluded rooms.

Source: 1974 SHU Microdata File.

households in a cohort live in dwelling units with 5+ rooms while only 10% of a similar single cohort do would be taken to mean that 50% of the W/D/S cohort is "overhoused." This assumption would not be valid if one believed that the housing needs of the two were different for some reason. However, this assumption does provide one plausible estimate of the extent of over-housing.

This standard was applied to three different measures of housing quantity; the extents of occupancy of (i) detached dwellings, (ii) dwellings with 5+ rooms, and (iii) dwellings with 600+ square feet of floor area. In each case, we focus on the oldest (aged 55+) age cohorts only as it is commonly asserted that this is where overhousing is most prevalent. Consider the SHU data on detached dwellings in Table 4.1. There .480 of the W/D/S, 55+ male cohort resided in detached units while only .148 of the corresponding single cohort lived in such units. The difference (.480 - .148) is .332 which when multiplied by the size of the cohort (11,500) yields an estimate of 3818 male, one-person (W/D/S) households which are over-housed. The corresponding figure for females is found to be 4221 for an estimated total of 8039 overhoused elderly, W/D/S, one-person households. The comparable figures for each combination of housing measure and data set are as follows

	1971 <u>PUS</u>	1974 <u>SHU</u>
Detached	12,290	8,039
5+ Rooms	12,812	10,360
600+ Floor Area	---	8,620

There are two striking features about these overhousing estimates. First, they tend to be quite similar. The PUS (provincial) estimates are roughly 12,000 to 13,000 while the SHU estimates (covering a smaller geographic area) are all

between 8,000 and 10,000 overhoused, elderly, W/D/S, one-person households. Secondly, these figures are quite small. They are small proportions of all one-person households. Also, they are small relative to the annual increase in all households in the province.

These estimates suggest that the extent of overhousing among elderly, W/D/S, one-person households is not large. Certainly, these numbers suggest that any public policy designed to motivate one-person households to move out of detached, larger dwellings and into smaller units will at best produce small changes. This is purely aside of course from the difficulties which might be expected in encouraging individuals to make such moves. All in all, it would appear that attacking "overhousing" among elderly one-person households may not be a fruitful means of increasing the supply of larger housing units.

4.3 Income Elasticities for Size of Dwelling

Let us now turn to the income elasticity measures. The following method was applied to each cohort sample from the 1974 Survey of Housing Units. Let us consider as an example single males aged 25-34. In all the SHU areas, there were 308 one-person households in this cohort sample. For each sampled one-person household, data are available on the number of rooms (and floor area) occupied by the individual and that individual's current total income. A Weighted Least Squares regression was estimated between the number of rooms (or floor area) as dependent variable and the total income of that one-person household as the independent variable.¹³ From such statistical results, a mean elasticity was estimated. For single males aged 25-34, this elasticity was found to be .3 for the number of rooms and .4 for the total floor area. This means that if one considers two groups (A and B) in this cohort of which individuals in group A have incomes 10% higher than the incomes of group B's individuals then the number of rooms (or floor area) occupied by group A

members will tend to be 3% (or 4%) higher than that of group B members. The estimated regression equations, R-squareds, samples sizes, cohort mean incomes, cohort mean room sizes (or floor areas), and elasticities are presented for each cohort in Table 4.5 (or Table 4.6).

Perhaps the most striking feature of the elasticity estimates presented in Tables 4.5 and 4.6 are that they are quite small. The largest for example is less than .55. In relative terms, this suggests that the number of rooms occupied or the total floor area occupied by a one-person household tends to be relatively insensitive to variations in income levels. This is not to say of course that the total housing expenditures of a one-person household are insensitive to that household's income. It may well be that the one-person household with a higher income is occupying a dwelling unit of a much higher quality and correspondingly costing more. These low elasticities imply only that the particular physical measures chosen (number of rooms or total floor area) are relatively insensitive to changes in income.

These low elasticity estimates have some interesting implications for the future space needs of one-person households. Again however one must raise the cautionary note that the elasticity estimates are based on cross-sectional data and that what we are about to do is to interpret them in a temporal setting. If this conjecture is correct, it implies that any future change in real income levels should tend to have very small impacts on these two measures of size of dwelling. This is in contrast to our earlier finding that at least for some cohorts the propensity to live in one-person households is quite sensitive to changes in real income.

Table 4.5: The Effect of Income on Number of Rooms Occupied by One-Person Households by Cohort; Ontario, 1974

	Single					Widowed/Divorced/Separated								
	\hat{B}_0	\hat{B}_1	R ²	N	\bar{Y}	\overline{RM}	ξ	\hat{B}_0	\hat{B}_1	R ²	N	\bar{Y}	\overline{RM}	ξ
Males														
15-24	3.10	.04*	.033	889	9.4	3.46	.125	3.69	.04*	.016	565	7.99	3.98	.080
25-34	3.36	.01	.002	251	7.99	3.30	.027	2.94	.12	.109	7	6.49	3.74	.195
35-44	2.58	.09*	.110	308	9.97	3.45	.299	3.76	.01	.001	78	10.62	3.86	.027
45-54	3.55	.02	.016	99	11.71	3.80	.059	2.70	.13*	.148	59	10.95	4.10	.356
55-64	3.03	.03	.021	100	10.46	3.31	.105	2.16	.09*	.161	80	10.77	3.10	.323
65+	3.27	.04*	.011	64	9.7	3.63	.097	2.35	.18*	.235	85	7.47	3.69	.336
	2.68	.14*	.212	67	4.68	3.35	.010	4.17	.10*	.068	256	4.43	4.60	.089
Females														
15-24	3.24	.05*	.034	973	6.98	3.59	.087	3.80	.08*	.066	1770	5.33	4.20	.107
25-34	3.01	.05*	.033	273	4.74	3.27	.079	2.75	.26	.170	13	3.15	3.57	.205
35-44	2.77	.08*	.088	247	7.65	3.35	.204	3.67	-.01	.005	52	9.87	3.56	-.024
45-54	2.90	.09*	.129	65	11.66	3.99	.262	2.88	.07	.044	50	8.70	3.53	.152
55-64	3.11	.05*	.061	91	9.90	3.66	.124	3.86	.08*	.048	183	6.46	4.40	.129
65+	3.19	.09*	.049	103	8.13	3.91	.183	3.97	.06*	.088	391	7.81	4.43	.117
	3.95	0	0.0	194	4.58	3.96	.000	3.64	.14*	.096	1081	3.69	4.15	.129

Notes: (1) Married Cohorts excluded because of small sample sizes

(2) Fitted equation using Weighted Least Squares.

$$S_i = \hat{B}_0 + \hat{B}_1 Y_i + e_i \quad i = 1, 2, \dots, N$$
$$(3) \text{ Elasticity } \xi = \hat{B}_1 \frac{Y}{RM}$$

(4) * denotes coefficient significant at the 95% level

(5) \bar{Y} measured in \$000's.

Source: See text.

Table 4.6: The Effect of Income on Floor Area Occupied by One-Person Households by Cohort; Ontario 1974.

Widowed/Divorced/Separated														
	\hat{B}_0	\hat{B}_1	R^2	N	\bar{Y}	\bar{S}	ϵ_i	\hat{B}_0	\hat{B}_1	R^2	N	\bar{Y}	\bar{S}	ϵ_i
Males														
15-24	370	10.7*	.083	889	9.40	470	.214	500	8.0*	.033	565	7.99	564	.113
25-34	400	4.9*	.045	251	7.99	439	.090	463	23.5	.077	7	6.49	615	.248
35-44	311	17.2*	.148	308	9.97	482	.355	479	7.7	.016	78	10.62	561	.146
45-54	438	5.2	.037	99	11.71	499	.122	462	11.3	.053	59	10.95	585	.212
55-64	360	7.0*	.058	100	10.46	433	.169	380	8.4*	.086	80	10.77	470	.192
65+	400	8.8	.020	64	9.70	485	.176	314	28.6*	.226	85	7.47	528	.405
	218	54.8*	.467	67	4.68	475	.540	522	23.0*	.141	256	4.43	624	.163
Females														
15-24	408	9.3*	.043	973	6.98	473	.137	479	19.5*	.107	1770	5.33	577	.171
25-34	367	8.2*	.031	273	4.74	406	.096	531	10.9	.034	13	3.15	497	.069
35-44	319	17.9*	.164	247	7.65	456	.300	419	9.7*	.100	52	9.87	515	.186
45-54	257	20.5*	.235	65	11.66	496	.482	335	16.2	.072	50	8.70	475	.297
55-64	341	12.1*	.240	91	9.90	461	.260	536	15.3*	.042	183	6.46	634	.156
65+	493	7.1	.011	103	8.13	551	.105	521	11.9*	.125	391	7.81	614	.151
	518	1.6	.001	194	4.58	526	.014	424	36.9*	.181	1081	3.69	560	.243

Notes: (1) Married Cohorts excluded because of small sample sizes

(2) Fitted equation using Weighted Least Squares

$$S_i = \hat{B}_0 + \hat{B}_1 Y_i + e_i \quad i=1,2,\dots,N$$

$$\text{Elasticity} = \epsilon_i = \hat{B}_1 \frac{Y_i}{\bar{Y} / \bar{S}}$$

(4) \bar{Y} measured in \$000's. \bar{S} in square feet

(5) * denotes coefficient significant at the 95% level

Source: See text.

5. The Future Growth of One-Person Households in Ontario

To this point, our analysis has been essentially historical; being concerned with how the one-person household has emerged in recent years. It is useful to speculate now on how the number of one-person households might change in the next couple of decades. Of course, any such projections are inevitably crude extrapolations of recent trends and must be viewed in that light. Any projection tells as much about our underlying assumptions as it does about what will actually happen in the future. Nonetheless such projections are useful because they provide a means of checking out the consistency of our ideas about how present patterns will change in the future.

There are four parts to this section. In the first, a projection method and methodology are described. Secondly, the approach used here is compared with those employed in three major earlier forecasts of household formation in Ontario. In the third part, actual forecasts are presented of the numbers of one-person households and all households and are contrasted with other available projections. Finally, some of the implications of these projections for housing demand are assessed. Using 1971 data from Section 4, the potential implications of the projections for housing demand by tenure and type of dwelling are evaluated.

5.1 Projection Method and Methodology

The approach adopted here follows the headship rate method. Changes in household formation are thus associated with both changes in cohort sizes and changes in one-person (or household headship) rates. Thus, the number of individuals in a forecast year in a particular age, sex, and marital status cohort is estimated. Then forecasts are developed of the one-person rate and the household headship rate for that cohort. Finally, a forecast of the

number of either one-person households or all households is developed using equations (3) or (4) from Section 2.

In developing population forecasts for each cohort, use has been made of Statistics Canada's most recent projections (see Catalogue 91-520) by age and sex for Ontario through 2001. Statistics Canada has made four separate population projections based on different assumptions about future fertility, migration, and immigration patterns.¹⁴ To summarize these projections;

- (1) Projection 1 assumes a slight increase in fertility rates, about 100,000 net immigrants each year into Canada, and the 1960's pattern of interprovincial migrants.
- (2) Projection 2 assumes a slight increase in fertility, 75,000 net immigrants and an interprovincial migration pattern benefitting Alberta and B.C.
- (3) Projection 3 assumes a declining fertility rate, 65,000 net immigrants, and a 1960's pattern of interprovincial migrants.
- (4) Projection 4 assumes a declining fertility rate, 75,000 net immigrants, and an interprovincial migration pattern benefitting Alberta and B.C.

All four projections are used in subsequent analysis although they tend to differ by only small amounts.

In the second step of the forecasting procedures, these population forecasts are further disaggregated by marital status. Three marital statuses are used; single, married (including separated), and widowed/divorced. The proportion of a cohort in each marital state is first forecast and then applied to the Statistics Canada age-sex population projection to yield a cohort (age-sex-marital status) forecast.

The problem here is thus one of forecasting marital status proportions for each age-sex group. The following method was employed. For Ontario, the 1971 and 1976 proportions of each age-sex group in each marital state were calculated. Let $M_{m,s,a}(T)$ be the proportion of the population of sex 's' and

age 'a' who are in marital status 'm' at time 'T'. Define further the

$$\text{growth rate, } g_{m,s,a}^m(T) = [M_{m,s,a}(T) / M_{m,s,a}(T-1)] - 1 \quad (5)$$

where 'T-1' is 5 years previous to 'T'. This same growth rate is assumed to also hold for the 1976-1981 period. After then, the forecast proportion five years into the future is assumed to be

$$M_{m,s,a}(T+1) = v(1 + f g_{m,s,a}^m(T)) M_{m,s,a}(T) \quad (6)$$

where f and v are factors whose values will be discussed below.

As an example, consider the group of 20-24 year old males. In 1971, roughly 65.0% (or $M_{m,s,a}(T-1) = .650$) of these individuals were single. In 1976, the percent single had increased to 67.7% (or $M_{msa}(T) = .677$); an increase of 4.12% (or $g_{m,s,a}^m(T) = .0412$). Suppose we let $f=0.5$ and $v=1$ which means that the growth rate in each period after 1981 is one-half of that in the preceding time period. The projected proportions of the 20-24 year old male group which are single through 2001 and the 5 year rate of change (in parentheses) are thus the following.

Year	1971	1976	1981	1986	1991	1996	2001
Proportion Single	.650	.677	.705	.719	.727	.731	.733
5-Year Rate of Change	(4.12%)	(4.12%)	(2.06%)	(1.03%)	(0.52%)	(0.26%)	

The rationale for employing (6) is as follows. On the one hand, this method does extrapolate on the basis of changes in marital status proportions between 1971 and 1976. On the other hand, introduction of an 'f' value between 0 and 1 mutes the 1971-1976 changes. In each forecast period succeeding 1981 the rate of change gets closer to zero so that as in the above example, the projected marital status proportions tend to stabilize over time.

Why project proportions in this way? For a number of age-sex groups, marital status proportions have shifted quite dramatically in recent years. The decline in marriage rates among young adults and the increasing incidence of divorce and separation at all ages are two recent phenomena. It is difficult to predict just how much longer these trends will continue. On the one hand, there is little evidence of any attenuation. On the other hand, there is no reason either to believe that these trends cannot disappear as fast as they appeared. By employing the 1971-1976 rates of change and an "f" value between 0 and 1, we are assuming a continuing pattern of change in marital status proportions through 2001 but hedging against future perturbations by having the changes become smaller over time. Clearly, the choice of an "f" value conditions how quickly the proportions stabilize over time and we shall return later to the question of how an appropriate value is chosen.

To this point, the value of "v" in (6) has been disregarded. In projecting the three marital status proportions, it is essential of course to have these sum to 1.0 for each age-sex group. If "v" were not included (or always set at 1), there would be no guarantee of this in (6). Thus, for each age-sex group in each forecast year, a value of 'v' is chosen to ensure that the proportions do sum to unity.

Let us return now to the remainder of the forecasting method. Having projected cohort populations by age, sex, and marital status, it remains to forecast one-person rates and household headship rates. In both cases, an approach similar to (5) and (6) above is used. To illustrate using one-person rates, let $p_{m,s,a}(T)$ and $p_{m,s,a}(T-1)$ be the one-person rates in a cohort in 1971 and 1976 respectively.

$$g_{m,s,a}^p(T) = (p_{m,s,a}(T) / p_{m,s,a}(T-1)) - 1 \quad (7)$$

$$p_{m,s,a}(T+1) = (1 + fg_{m,s,a}^p(T)) p_{m,s,a}(T) \quad (8)$$

Thus again the 1971-1976 changes in one-person rates are muted by "f" so that over time these rates will tend to stabilize. Note that a 'v' value is not included here because we are not forecasting proportions which then must sum to unity.

Why project one-person rates and household headship rates in this way? There are several reasons. One is that we do not possess very much historical data on these rates. The cohort one-person rates in Table 2.1 for example date only from 1966. Thus, any extrapolative method must be based on relatively crude assumptions. Secondly, available 1966-1971 rates of change show many similarities with the 1971-1976 rates of change so that looking at the latter exclusively is not misleading. Thirdly, some of the rates of change between 1971 and 1976 in one-person rates have been so dramatic that unmuted projections (i.e. f=1) generate exceptionally large numbers of households by 2001. This latter problem is discussed further below. For all the above reasons, projections based on growth rates which tend toward zero over time are seen to be attractive.

In the last step of the forecasting method, these forecasted one-person and household headship rates are applied to the earlier-derived projections of cohort populations according to (3) and (4) to yield forecasts of the number of total and one-person households.

Let us be under no illusions here about the projection method employed. On the one hand, the headship rate method is a widely-used means of projecting household formation. On the other hand, it relies

on very crude assumptions about future changes in headship rates. In the present study for example, we make very little use of the material described in sections 2 through 4 and do not attempt to assess specifically the future impacts of changes such as in affluence, in housing subsidy programs, in ages at home-leaving, in social fragmentation, or in the frequency of divorce. Rather, it is merely assumed that such factors will continue on an attenuated basis to affect one-person rates through 2001 pretty much as they had up to 1976.

Although this forecasting approach can be criticized for its naivety, it has two main strengths. First, it is, to repeat, consistent in approach with prior attempts (such as those described in section 5.2 below) to forecast household formation. One might want to question that approach in general but one could not argue that the perhaps-surprising forecasts described below in section 5.3 are the consequence of an unorthodox forecasting method. Secondly, it will be argued in 5.3 that the important conclusion from this forecasting exercise is a qualitative, not a quantitative, one. It is contended that future changes will almost certainly be towards relatively more one-person households and this rather than the absolute forecasts themselves is seen to be the most significant consequence of this exercise.

5.2 Comparisons With Other Forecasting Methods

There are three recent projections of household formation in Ontario. One has been undertaken by Central Mortgage and Housing Corporation, another by Statistics Canada and the third by Peter Barnard Associates for the Ontario

Ministry of Housing. All three project total household formation and do not consider one-person households separately. However all are similar to the present approach in that they employ a headship rate method.

CMHC (1978) has undertaken projections to the year 2000. Two sub-models are used to generate estimates of household formation. The first is a demographic submodel which projects age, sex, and marital status cohort populations. The second is a "housing requirements" submodel which forecasts headship rates and applies these to the cohort population estimates. In these terms, the approach used is similar to that described in the previous subsection. Some of the principal differences between the two are the following.

- (1) The CMHC study uses four marital statuses (widowed and divorced are treated as two states) and projects marital status simultaneously with age and sex. Thus, the CMHC study projects transitions of individuals between marital states as a cohort ages; for example, the transition from single to married status among young adults. The present study uses a simpler approach in merely forecasting proportions by marital status without directly considering the issue of transitions.
- (2) The CMHC study considers both headship rate increases and the speed of such increases. This is quite similar to our use of $g_{m,s,a}^p$ and f . The principal difference is that the CMHC study uses speeds of increase which correspond to a value of f close to 1.0. As is discussed below, the present study tends toward a much smaller value of f .
- (3) The CMHC study is based on historical data up to 1971. Because of this, it misses a number of important trends which have emerged in the late 1960's and early 1970's such as the movement away from marriage. This may account for some of the differences between the CMHC projections and those described below in the present study.

The Statistics Canada (1975) projections run through 2001. Three sub-models are used to generate household estimates and these are quite similar to the present study; (i) a demographic submodel to generate age-sex distributions, (ii) a marital status submodel to project marital state proportions for each age-

sex group, and (iii) a headship rate submodel to project headship rates. Some of the principal differences from the present study are as follows:

- (1) The SC study uses a different set of three marital statuses (single, ever-married with spouse present, ever-married with spouse absent) but in an approach which is quite similar to the present study.
- (2) Unlike either the CMHC or present study, the SC study does not consider changes in the growth rates of headship rates. Essentially, future headship rates up to 1986 are extrapolated simply from the changes observed between either 1951 or 1961 and 1971. After 1986, the SC study assumes fixed headship rates through 2001.
- (3) As with the CMHC study the SC study is based on 1971 and earlier data.

The Peter Barnard Associates (1977) study, also generates forecasts of total household formation through 2001. It is based on population projections for Ontario made by the Economic Analysis Branch of the Ontario Ministry of Treasury, Economics and Intergovernmental Affairs based on 1971 and earlier Census data. The forecast household headship rates used in the SC study are used again in this study. As well, these rates are aggregated by marital status so that the PBA study does not attempt to separately forecast marital status changes. As in the SC study, forecast headship rates are assumed to increase through 1986 and remain constant thereafter.

5.3 Projections of Household Formation

Some of the projections of one-person households are presented in Table 5.1. For each of Statistics Canada's four sets of population projections, four sets of household projections have been made; one assuming that the 1976 one-person rates hold for the rest of the century and three where f 's of 0.25, 0.50 and 0.75 are used. For each projection set, the average annual rate of increase in the number of one-person households between 1976 and 2001 is indicated in parentheses. Several patterns are noteworthy here.

Table 5.1. Projections of One-Person Households in Ontario; 1981-2001

	1976			
	Rates	f=.25	f=.50	f=.75
	Thousands of Households			
1976	449	449	449	449
Projection 1				
1981	507	713	713	713
1986	565	881	974	1068
1991	622	984	1183	1486
1996	669	1053	1329	1924
2001	718	1122	1452	2404
(Annual Increase)	(1.9%)	(3.7%)	(4.8%)	(6.9%)
Projection 2				
1981	501	704	704	704
1986	549	851	940	1030
1991	594	932	1117	1398
1996	628	979	1229	1769
2001	662	1023	1317	2160
(Annual Increase)	(1.6%)	(3.3%)	(4.4%)	(6.5%)
Projection 3				
1981	503	707	707	707
1986	555	864	954	1046
1991	607	957	1149	1441
1996	647	1012	1273	1835
2001	687	1062	1366	2239
(Annual Increase)	(1.7%)	(3.5%)	(4.6%)	(6.6%)
Projection 4				
1981	499	701	701	701
1986	546	847	935	1025
1991	592	930	1114	1395
1996	626	974	1224	1757
2001	659	1013	1300	2119
(Annual Increase)	(1.5%)	(3.3%)	(4.3%)	(6.4%)

Source: See text

- (1) The differences are fairly small among the four projections for a given f . Statistics Canada's Projection 1 assigns the largest population to Ontario while Projection 4 assigns the smallest and this pattern is reflected in the household projections. However, these differences in household forecasts are quite small and are swamped by the effects of a change in ' f '.
- (2) Retaining the 1976 one-person rates through 2001 produces only small increments (1.6 to 1.9% per year) in the stock of one-person households. This means that increases in total population and in the age and sex mix of that population will likely account for only small gains in the formation of one-person households.
- (3) Larger values of ' f ' produce dramatically larger estimates of the stock of one-person households. In each case, the 1981 estimates are the same because the 1971-76 changes are duplicated for 1976-81. However, after 1981 the forecasts are quite different depending on the value of f selected.
- (4) The rate of increase among one-person households is projected to be most rapid when $f=0.75$. Here the estimated annual rate of increase ranges from 6.4 to 6.9% between 1976 and 2001. This is similar to the corresponding figure for the 1951-1976 period which was 7.1%. For smaller values of f , the rates of increase between 1976 and 2001 are substantially below the 1951-1976 rate.

Projections were derived in a similar manner for total households in Ontario and these are presented in Table 5.2. These projections are broadly similar to those described above for one-person households with small differences among the four projections for a given ' f ' and larger differences for different f 's. A principal difference is the much lower rates of increase projected for total households compared to one-person households. Between 1951 and 1976, the total number of households increased to an average of 3.2% per year. The projections made generate average rates of increase over 1976-2001 of between 1.4 and 2.8% which are below this rate and well below the pace for one-person households. Another difference from Table 5.1 is that the choice of ' f ' has a relatively smaller effect on the projections made. Projections of total households are not as sensitive to the choice of ' f ' because the 1971-76 growth rates are smaller than those for one-person rates.

Table 5.2. Projections of Total Households in Ontario; 1981-2001

	<u>1976</u> <u>Rates</u>	<u>f=.25</u>	<u>f=.50</u>	<u>f=.75</u>
	Thousands of Households			
1976	2635	2635	2635	2635
Projection 1				
1981	2899	3077	3077	3077
1986	3263	3528	3595	3664
1991	3606	3912	4051	4251
1996	3893	4220	4408	4772
2001	4162	4503	4724	5269
(Annual Increase)	(1.8%)	(2.2%)	(2.4%)	(2.8%)
Projection 2				
1981	2859	3035	3035	3035
1986	3141	3394	3459	3524
1991	3383	3668	3796	3982
1996	3567	3864	4034	4363
2001	3730	4034	4229	4710
(Annual Increase)	(1.4%)	(1.7%)	(1.9%)	(2.4%)
Projection 3				
1981	2871	3048	3048	3048
1986	3195	3454	3520	3587
1991	3494	3790	3923	4116
1996	3735	4046	4225	4569
2001	3950	4269	4474	4976
(Annual Increase)	(1.6%)	(1.9%)	(2.1%)	(2.6%)
Projection 4				
1981	2846	3021	3021	3021
1986	3128	3380	3444	3510
1991	3382	3667	3796	3981
1996	3578	3873	4043	4370
2001	3744	4045	4238	4708
(Annual Increase)	(1.4%)	(1.7%)	(1.9%)	(2.3%)

Source: See text.

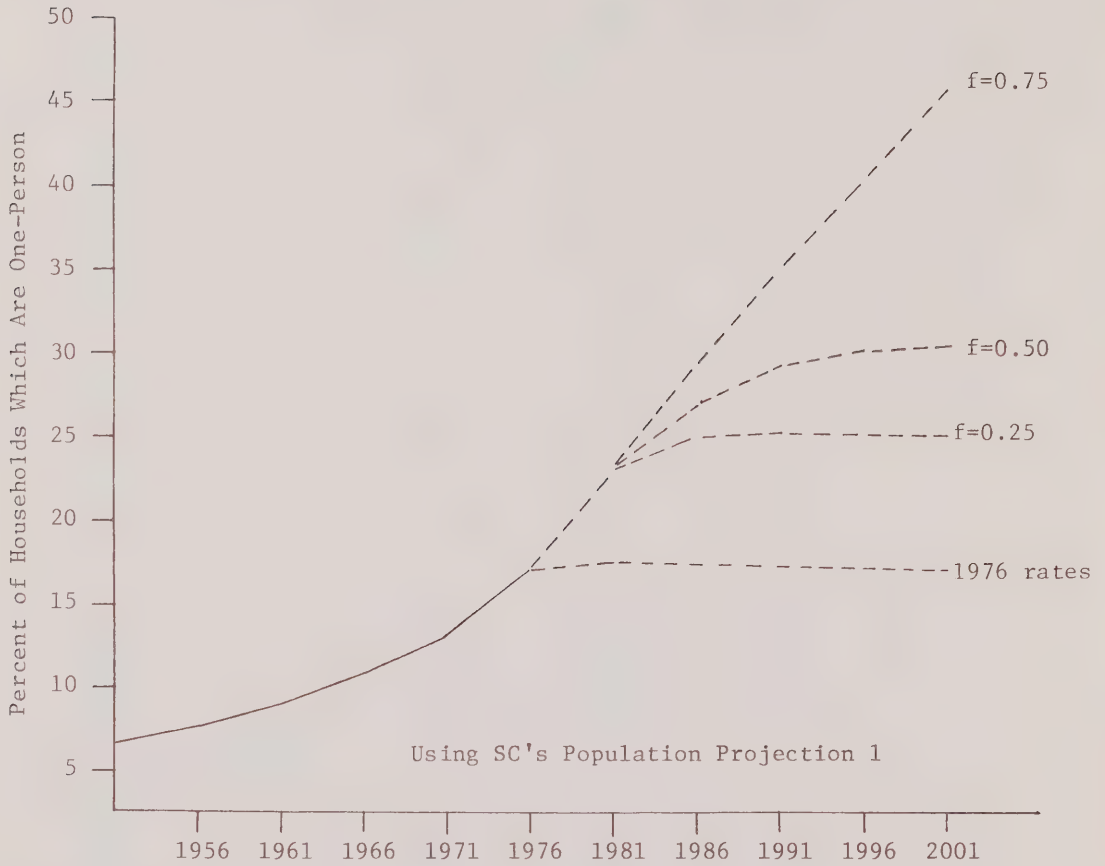
The proportions of total households which are of size one can be calculated from Tables 5.1 and 5.2. These are presented for Statistics Canada's Population Projection 1 in Figure 5.1. When the 1976 rates are held through 2001, there is virtually no change in this proportion. The proportions increase quickly for larger f values although for f between .25 and .50 the 2001 proportion varies only from roughly 25 to 30%. For an f larger than .50 however the proportion increases much more sharply; it rises to 45% by 2001 for $f=0.75$.

These projections suggest that the one-person household will continue to be an increasing proportion of all households. Further, this will be attributable to increases in one-person rates which are relatively larger than the increase in household headship rates in general. It will also be attributable to projected increases in the incidence of not-married individuals at all ages. It will not be attributable (over this time period at least) to changes in the age structure of the population.

The increasing relative importance of the one-person household is perhaps the major conclusion of this forecasting exercise. An increasing proportion of all households will be of size one through 2001 almost regardless of the f -value chosen. The increase is quite modest (relative to the 1951-1976 period) when low f -value are used but the direction is unmistakable. This may seem surprising to those who would argue that because of the maturing baby boom there will be a decline in one-person households between 1976 and 2001. The one-person household has emerged for a number of different reasons and the maturing baby boom will not likely be enough to offset the rest through 2001.

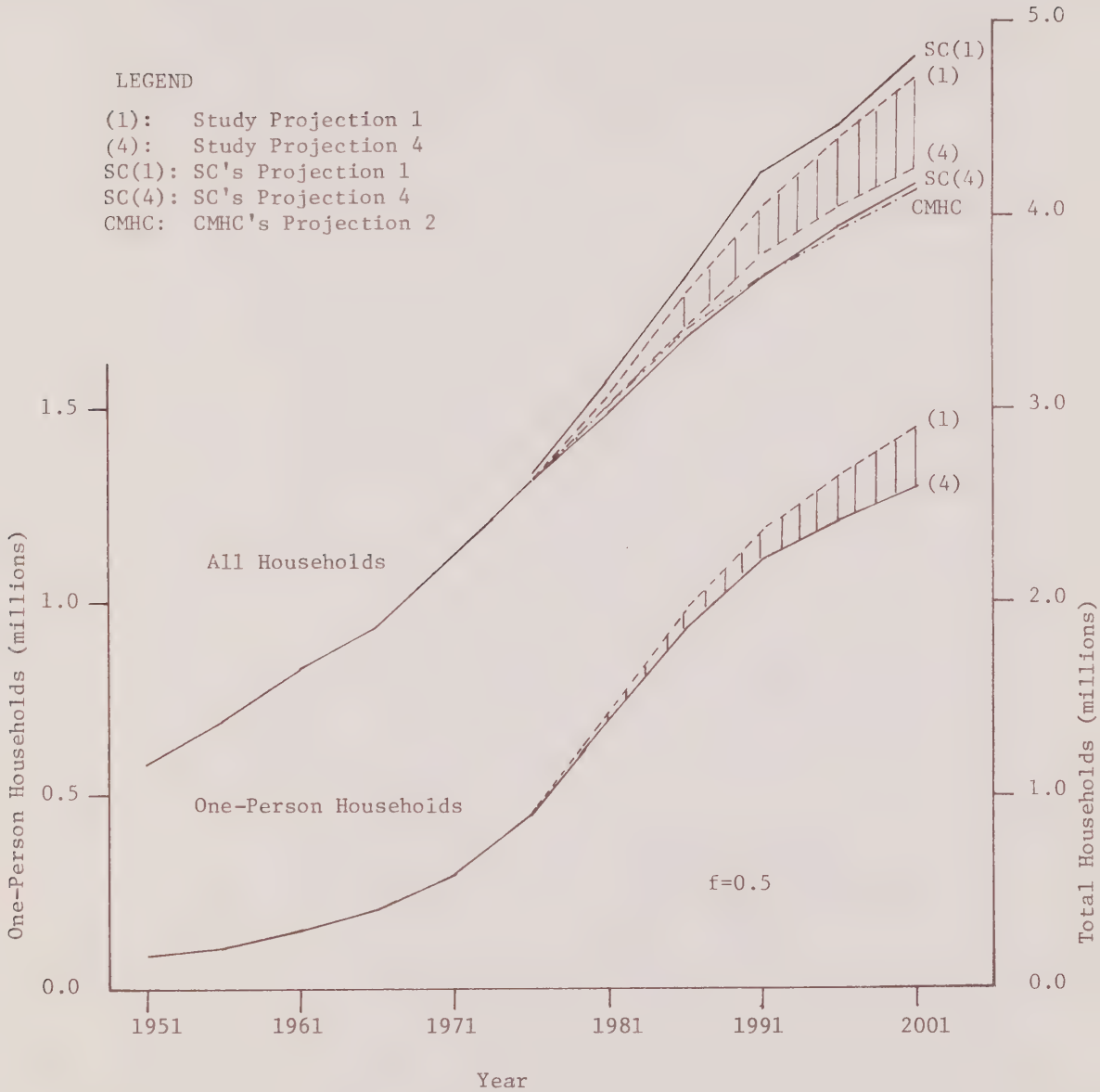
To this point, nothing has been said about which value of ' f ' is the most plausible. In part, this is because it is important to recognize how sensitive one's forecasts are to a choice of ' f '. However, this is of little comfort to the planner who needs point estimates. If forced to choose just one, the

Figure 5.1: Projected Proportions of Ontario Households which are of Size One, 1976-2001



Source: Tables 1.1, 5.1, and 5.2.

Figure 5.2: Projections of One-Person and Total Households 1976-2001



Source: See Test

estimates associated with $f=0.50$ are perhaps the most attractive and for the following reasons. When $f=0.50$, the total number of households in 2001 in the province is forecast to be between 4229 and 4724 thousand depending on the population projection used. This accords quite well with Statistics Canada's own earlier projections of household formation in Ontario. The comparative figures are presented graphically in Figure 5.2. A larger value of f would put one outside the range of these earlier forecasts. Secondly, when $f=0.50$ the results are conservative estimates of one-person household formation. As seen in Figure 6.2, the number of one-person households is projected to be increasing quite slowly by 2001.¹⁵ This reflects entirely the assumption that one-person rates would be changing very little by then compared to the 1971-76 period. Thirdly, when $f=0.5$ the proportion of all households which are of size one appears to be quite consistent with historical patterns. An increase to about 30% in this proportion by 2001 is projected for Ontario and this proportion had already been exceeded in some areas of the province by 1976 (notably the City of Toronto).

There is a fourth reason why the forecasts associated with $f=0.5$ seem reasonable. In section 2, it was found that changes in the age, sex, and marital status distribution of Ontario's population accounted for about 32% of the increase in one-person households between 1966 and 1976. In other words, the increase in one-person households to 1976 was about three times as large as the increase estimated by applying 1966 one-person rates to the 1976 age, sex, and marital status cohorts. By comparing the first and third columns of Table 5.1, it can be seen that the $f=0.5$ forecasts bear about the same 3 to 1 relationship with the forecasts which assume 1976 rates hold through 2001. In other words, a forecast based on $f=0.5$ is crudely consistent with an assumption that the relative importances of demographic and non-demographic explanations between 1966 and 1976 are maintained from 1976 to 2001.

Whichever projection one chooses, certain patterns are evident.

- (1) Changes in the age-sex mix of the population from 1976 to 2001 will by themselves produce little change in the proportion of households which are of size one. This can be seen from the projections using 1976 rates. It arises from the fact that with the maturing baby boom (the cohort born roughly between 1945 and 1960) there will be a transition from young single to middle-aged W/D/S one-person households which leaves the overall numbers relatively constant. After 2001 however, there should be a rapid explosion for at least two decades in the formation of one-person households as this baby boom group moves into the elderly W/D/S cohorts.
- (2) Increases in the proportion of all households which are of size one occurring between 1976 and 2001 will arise strictly because of changes in one-person rates. On the one hand, one-person rates have increased sharply for all cohorts prior to 1976 and there is no reason to believe that the pattern will not continue through 2001. On the other hand, we have quite crude empirical notions about why these rates are changing and this makes any forecasts quite speculative.
- (3) Increases in the number of total households between 1976 and 2001 will likely be smaller than those for one-person households. In part this is because it is projected that household headship rates will not increase as fast as one-person rates (continuing a pre-1976 pattern). In part, however, it is also because the net impact of the baby boom on the formation of 2+ person households will soon be pretty well completed. The impact of the baby boom on the formation of one-person households will by contrast be increasingly felt as the baby boom matures.
- (4) Underlying shifts in marital status contributed to the formation of one-person households prior to 1976. The rising incidence of divorce and the move away from marriage witnessed in the last decade or so show no signs of abating. It is thus likely that the period 1976-2001 will include additional shifts of this kind with a corresponding impact on the number of one-person households.
- (5) The overall growth rate of one-person households should be lower during 1976-2001 than it was in 1951-1976 if only because the rate of population growth has declined. At the same time however, this argument is also true for total household formation.

5.4 Housing Demands of One-Person Households; 1976-2001

A question which one might want to address of the projections in Section 5.3 has to do with housing demand implications. How many of these one-person households are likely to reside in detached dwellings, in semi-detached or row dwellings, in duplexes, or apartments, or in owner-occupied dwellings. In one sense, questions of this type are well beyond the scope of this paper. To answer them,

one would have to look at new building technologies, relative construction costs for each type of dwelling, and (in terms of the projected incomes of one-person households) the future affordability of different dwelling types.

What can be undertaken here is a very crude analysis. We can decompose our one-person household projections by age, sex and marital status cohort and then use the PUS data in Tables 4.1 and 4.2 to estimate what the number of dwellings occupied of each type would be if 1971 cohort patterns continued unchanged. In doing this, we can generate an estimate of the effect of changing cohort numbers on type of dwelling unit occupied, assuming away all the other factors that might influence a household's choice.

An analysis of this type was undertaken to examine the tenure and type-of-dwelling implications of our one-person household projections. The results vary somewhat depending on the Statistics Canada population projection and f value used but the patterns are broadly similar. In Table 5.3 are presented the estimated percentages of one-person households according to characteristics for $f=0.5$ and projection 1.

These data suggest a moderate shift from 1971 to 1986 away from owner-occupied and detached dwellings and toward duplex/apartment dwellings. From 1986 to 2001 however, the type-of-dwelling choices of one-person households are not expected to change. The reason for this has to do with the maturing baby boom. In both Tables 4.1 and 4.2, high levels of owner-occupancy are associated with the 55+ age group. However, the leading edge of the baby boom will be just reaching age 55 by about 2001 and the trailing edge is just now approaching adulthood. Therefore, the period up to 1986 will be one in which the main effect is still the entry of young adults into one-person households. By contrast, the 1986-2001 period will be one in which baby boom is quite concentrated in the 25-54 age group with little attendant change

Table 5.3: Percent of One-Person Households in Tenure and Type-of-Dwelling Classes; Ontario, 1971-2001.

	PUS	Forecasts Based on SC Projection 1 and $f=0.5$				
	<u>1971</u> (%)	<u>1981</u> (%)	<u>1986</u> (%)	<u>1991</u> (%)	<u>1996</u> (%)	<u>2001</u> (%)
Owners	38.9	34.1	32.6	32.3	32.4	32.5
Detached	38.0	35.3	34.0	33.8	33.9	34.0
Semi/Row	5.6	5.7	5.8	5.8	5.8	5.8
Duplex/Apt	56.4	59.0	60.3	60.5	60.4	60.3

Note: Detached and Semi/Row and Duplex/Apt may not add to 100 due to rounding.

Source: See text

in type-of-dwelling choices. The corollary of this argument is that after 2001 one should expect substantial changes in such choices as the 55+ age group is swollen.

Again, let us assert the caveat attached to such projections. No attempt has been made to look at economic factors which might affect future type-of-dwelling choices. We have merely disaggregated our forecasts of one-person households by age, sex, and marital status and used 1971 propensities for these cohorts to occupy particular dwelling types to generate our forecasts.

Section 6: Conclusions and Implications for Planning

To this point, we have examined some trends in the formation of one-person households in Ontario, some alternative explanations for these trends, and some projections based on these trends. We have seen the number of one-person households increase very sharply between 1951 and 1976. In sections two and three, we have attempted to quantify the relative importance of some of the alternative explanations between 1966 and 1976. The estimates derived are summarized as follows.

Total Increase in One-Person Households, 1966-1976		242,600
Impact of Demographic Changes alone	About	78,300
Baby Boom and Shift Away From Marriage	Up to	37,500
Widowhood	Up to	27,400
Other (Residual)	At Least	13,400
Other Changes in Conjunction with Demographic Changes	About	164,300
Separation of Spouses (Divorce)	Up to	25,000
Home-Leaving and Affluence Among Young Adults	Up to	46,400
Housing Subsidies to Elderly	Up to	32,900
Social Fragmentation, Affluence Among Elderly	Possibly	40,600
Other (Residential)	At Least	19,400

For the most part, these estimates are upper limits on the roles of various explanations - some of which may be jointly operating. No separate estimates of the impacts of the home technology and minor structural change explanations have been possible. These latter impacts, where they exist, are embedded in the above estimates.

These estimates support the contention that the rise of the one-person household is a broadly-based phenomenon. The fact that there are several different explanations, each contributing substantially to this rise, makes one more confident that the rise will continue at least into the next several decades. The future growth of the one-person household may be slower or faster than that experienced from 1951 to 1976 but the direction of change

seems virtually certain.

Some simple extrapolative projections have been undertaken in section 5. While these projections are quite crude in that they do not explicitly consider the relative future contribution of each explanation, they are developed using a forecasting method common to most studies of household formation. These projections suggest that the one-person household will continue through 2001 to become more frequent relative to other types of household although its growth rate will decline from 1951-1976 levels as overall population growth declines. The value of these forecasts lies not in the actual numbers projected but in the direction of changes being predicted.

What are the implications of these present and (potential) future patterns for housing policy and planning in the province? Let us look at each of these in turn.

6.1 Implications for Housing Policy

One way of viewing the findings of this paper would suggest that the implications for future housing policy in Ontario are fairly mild. In the 1951 to 1976 period, the one-person household rose from 7% to 17% of all households without apparently any grave consequences for the housing market. The major direct impact of Ontario's housing programs to date has been through senior citizen housing assistance. However, in the 1966-1976 period for which data are available, such housing assistance likely accounted for less than 15% of all the increase in one-person households. This suggests that the private sector itself has adapted quite substantially to this rapidly increasing size of household.

It has been suggested in section 5 that the one-person household could conceivably form 30% of all households by the year 2001. This proportion seems very large but needs to be considered in light of the change between 1951 and 1976. An increase from 17% in 1976 to 30% in 2001 is smaller in relative terms

than the change from 7% to 17% over 1951-1976. In view of the past ability of the private sector to adapt to change, this increase does not in aggregate seem to pose particular housing policy problems.

In Table 5.3, some tenure and type-of-dwelling implications of the one-person household forecasts were assessed. It was suggested that such changes will not likely be very large and there is not much reason to believe that the private sector will not be able to adapt to these.

For all of these reasons, one might conclude that the future implications for housing policy in Ontario are fairly mild indeed. A different way of looking at the findings is to suggest that, although the private sector is capable of adapting to such changes in aggregate, there are specific groups such as the elderly who may usefully benefit from housing assistance. There will be a moderate growth in the number of elderly between 1976 and 2001. Whether this will result in many publicly-assisted one-person households depends on future income and wealth patterns among such individuals and on the viability of housing allowances versus other forms of income maintenance.

A related view is that one-person households require special policy consideration because of certain aspects of their nature. For example, a number of the elderly living alone are either handicapped or not as mobile as other individuals. Such persons may well have special needs both in terms of the physical design of their accommodation and in terms of the provision of social services. As another example, younger individuals living alone are typically in the labour force and are thus absent from their homes during regular business hours. Such individuals can find it difficult to partake of certain kinds of services typically offered at home at those times. As examples, one might include here delivery of registered mail, voter enumeration and home delivery of purchased goods. In part, this problem

can be overcome by arranging for the delivery of such services in non-business hours. In part however, the problem can be alleviated by housing design policies which make possible the "drop-offs" of such services during regular business hours.

Perhaps the single greatest implication for housing policy of the present study is a clearing of the air about the causes of the rise of the one-person household. A number of planners and housing analysts have asserted that the rise of the one-person household has been mainly the consequence of a maturing baby boom. Such an argument leads to the inescapable conclusion that the one-person household will decline in importance through the year 2001. The present study has shown that the rise of the one-person household has been more broadly based than this and that it can be expected to continue into the future. The question which must now be asked is the following. To what extent have current planning and housing policies been built on a likely-mistaken assumption that the one-person household would subside as a phenomenon in the near future? This study will have served a major purpose if it causes planners and housing policy analysts to review their own work and thinking about this important phenomenon.

6.2 Implications for Planning

What are the implications of these present and (potential) future patterns for planning in the province? It would seem that there are at least three kinds of potential problems.

- (1) Adjustment Problems. Any change in society which is large and goes on over a long period of time tends to create adjustment problems. Planners may then wish to do something to control the rate of change even if they are broadly in favour of the long-run trend itself.
- (2) Economic Misallocation Problems. In economic terms, sometimes a phenomenon occurs because it is "mis-priced" (or almost invariably "underpriced"). A question of this sort might be raised about one-person households. To what extent has the growth of one-person households been attributable to a "mis-pricing" and what can or should planners do to remedy this situation?

- (3) Social Problems. Sometimes, a phenomenon is thought to be bad because it is "socially undesirable" on some social, political, or other grounds. Purely aside from adjustment and economic misallocation problems, the planner may feel some social need to engage in a corrective policy.

In the ensuing subsections, we will examine potential problems of each of these three kinds. The discussion is preliminary and exploratory. A number of the issues raised are worthy of more analysis than could be given in the present study.

6.2.1 Adjustment Problems

There are perhaps two major adjustment problems facing planners. One is to find ways of defining and encouraging an "appropriate mix" of household types in a given locality. The second problem is to ensure that the rapid growth of one-person households is accommodated in such a way that the interests of existing neighbourhoods are protected. Let us consider these in turn.

There are some definite differences in the locational patterns of different one-person households which tend to create these two adjustment problems. Particularly noteworthy are the young singles who show well-known preferences for central locations within larger urban centres. This can cause severe problems for planners who have a policy of encouraging housing and household diversity in different localities within a city. It may be quite difficult to either encourage such households to locate elsewhere or to discourage developers from trying to supply this segment of the market locally.

In addition, much of this central development tends to have spillover effects on older nearby neighbourhoods. In the City of Toronto for example, some of the negative effects of young one-person households (typically cited by neighbours as noise, rowdy behaviour, increased traffic, and rapid changeover of housing units) have been cited in attempts to better control the often-illegal conversion of older dwellings into multiple, small, one-person housing units. It is very difficult to plan the kind of redevelopment that

recognizes the legitimate housing needs of one-person households while at the same time protecting existing households.

6.2.2 Economic Misallocation Problems

Is the one-person household being "mis-priced"? Is this kind of household being subsidized in a way which makes it attractive to persons who might otherwise choose some other living arrangement? These questions are very difficult to answer off the cuff because they require an extensive, systematic study of the social costs and benefits of one-person households. In this paper, one can only begin to speculate on a few answers.

One scheme which might be pointed to is a property tax deferral plan operating in several Ontario municipalities. This is a scheme which permits elderly homeowners to defer their annual property taxes until the dwelling changes hands. The municipality in effect takes a lien on the property for unpaid taxes and accumulated interest which is paid by the vendor (either the homeowner or his estate) upon disposition. Such a scheme lowers the cash-flow expense of retaining what might otherwise be a now-uneconomic dwelling. To the extent that many elderly individuals live in one-person households, this scheme may thus be encouraging the formation of this kind of household and the continued occupancy of larger dwelling units long after housing needs have shrunk.

Another scheme and one that is relatively new is an annuity plan whereby a financial institution agrees to pay an elderly homeowner a monthly amount for as long as that person lives. After the death of the individual, the financial institution is in return promised title to that property. The scheme is attractive because it offers some financial security for as long as the individual lives and helps to reduce the cash-flow expenses of operating the household. Such annuity plans although relatively new and not widespread may

serve to make one-person households even more attractive to the elderly.

Finally, there is the thorny issue of whether one-person households are paying their fair share of property and other taxes. Partly, this hangs on the amount and cost of services provided to one-person households versus other-sized households. Partly, it hangs on the "ability to pay" of such households versus the 2+ person households. It is not clear at this stage whether or not the one-person household is getting a "free ride" in this respect.

6.2.3. Social Problems

Does the one-person household pose a social problem that requires corrective planning action? Again, separate volumes could be written on this subject. All that can be done here is to sketch a few main arguments.

One view is that the one-person household is a cause of social alienation. It has been argued that individuals become less sensitive to the needs of others, more concerned with themselves, and more likely to become despondent and even suicidal when they live alone. As a consequence, one-person households are seen to present new problems which planners have to alleviate. Although the argument has some plausibility, it is not clear that living alone need necessarily result in social alienation.

Another view is that the one-person household is a wasteful living arrangement; wasteful in terms of resource and energy use. In such a view, it would be argued that every household tends to have certain basic dwelling requirements regardless of household size. These requirements (such as kitchen and bathroom facilities) become cheaper to provide on a per capita basis the larger the household size. In a similar manner, per capita energy use may also fall with increasing household size. The conclusion is drawn that therefore one-person households should be discouraged because of their inefficient nature.

A potential problem with both of the above arguments is that they assume that a person considering the creation or abandonment of a one-person household is unaware of (or does not give due consideration to) such arguments. It is not at all clear that this is the case. An individual making such a choice might be expected to face tradeoffs and his or her choice may or may not look rational when measured against only one criterion.

6.3 A Concluding Comment on Implications for Planning

It is beyond the scope of this paper to draw any conclusions about economic misallocation or social problems associated with the one-person household. This would require a major additional study. However, adjustment problems are somewhat easier to identify and do pose some immediate implications for planning. In particular, the continued future growth of one-person households means that planner will increasingly have to look at this kind of household as a large-scale permanent feature with its own special problems.

NOTES

1. A "private entrance" means that the individual does not pass through someone else's living quarters to reach his or her own.
2. In the Census of Canada, all places of residence are classified into three types; urban, rural farm, and rural nonfarm. Urban places of residence include (i) incorporated cities towns and villages with 1000 persons or more, (ii) unincorporated places of 1000 persons or more having a density of at least 1000 persons per square mile, or (iii) the urbanized fringes of (i) or (ii). All remaining places of residence are rural. A rural farm place of residence is a dwelling located on an agricultural holding of at least 1 acre and having a certain level of sales of agricultural products. All other rural places of residence are rural nonfarm.
3. Census data for counties and census divisions were aggregated to create these Planning Region estimates. Two cases arose here where Planning Regions split census divisions. Although the Eastern Region includes a small part of Nipissing District, the latter was necessarily included entirely in the Northeastern Region. Also, although Kenora is split in half by two Planning Regions, it is here necessarily included entirely in the Northwestern Region. These two alterations have relatively small effects on the data because both mis-allocated parcels have relatively few inhabitants.
4. A Census Metropolitan Area (CMA) is a continuously built-up area having a population of 100,000 or more and includes municipalities completely or partly within the built-up area and certain municipalities within a 20 mile radius of the built-up area. Some urban areas have only recently achieved the threshold size for a CMA and therefore rates in Table 1.2 are not available for all Ontario CMA's back to 1951.
5. It is assumed that the reader is familiar with the terminology of regression analysis.
6. Prior to 1976, the Census definition generally excluded married women and never-married children (still living in their parents' home) from being heads if the husband (or father) was present. In the case of a nonfamily group sharing a household, any one individual could be the head. In the 1976 Census, this definition was changed to permit either spouse to be head.
7. The great majority of the remaining one in eight who were married were separated although some represent individuals whose spouses were temporarily absent.
8. Just three age groups are used here rather than the six (15-24, 25-34,...65+) used frequently elsewhere in this paper. Further, no marital status breakdowns are used. The reason for this is that the sample is too small to permit reliable estimation of an income distribution for more finely disaggregated cohorts. This may sound surprising in view of the fact that there are 22,277 households and 77,030 individuals in the Ontario PUS.
9. For definitions of "private assisted" and "public assisted" households, see notes (1) and (2) in Table 3.2.

10. In the SHU data, it is not possible to identify non-family individuals. Rather each individual is identified as being a member of a Primary Nuclear Family (PNF) or not. A Non-PNF individual includes all non-family individuals plus persons who are members of secondary families. A secondary family is one whose head is not also the head of household and typically consists of a lodging family.
11. In each income class, each individual is weighted by his or her household record weight to account for the SHU stratification.
12. Married (not separated) individuals have been excluded from this analysis.
13. Each observation was weighted to account for SHU's stratified sample design.
14. Other projections were also made to allow for severe changes in current demographic patterns. These have not been considered in this paper.
15. The Peter Barnard Associates forecasts of total households are not shown as they are virtually identical to the SC(4) projection in Figure 5.2.

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